

Service Service Service

Service Manual FHP plasma panels: 3122 785 14580
Service Manual SDI plasma panels: 3122 785 14990



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Service Manual

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1. Technical Specifications, Connections, and Chassis Overview

Index of this chapter:

- 1.1 Technical Specifications
- 1.2 Connections
- 1.3 Chassis Overview

Notes:

- Figures can deviate due to the different set executions.
- Specifications are indicative (subject to change).

1.1 Technical Specifications

1.1.1 Vision

Display type	: Plasma, 16:9
Screen size	: 42" (106 cm), FHP
	: 50" (127 cm), SDI
Resolution (HxV pixels)	: 42" - 1024x1024i
	: 50" - 1366x768p
Contrast ratio	: 1000:1
Light output (cd/m ²)	: 42" - 1200
	: 50" - 1000
Viewing angle (HxV degrees)	: 160 x 160
Tuning system	: PLL
Colour systems	: PAL B/G, D/K, I
	: SECAM B/G, D/K, L/L'
Supported computer formats	: 640x480
	: 800x600
	: 1024x768 (50")
Supported video formats	: 640x480i - 1fH
	: 720x576i - 1fH
	: 640x480p - 2fH
	: 720x576p - 2fH
	: 1920x1080i - 2fH
	: 1920x1152i - 2fH
	: 1280x720p - 3fH
AV (playback only)	: NTSC, PAL, SECAM
Presets/channels	: 100 presets
Tuner bands	: UHF, VHF, S, H-band

1.1.2 Sound

Sound systems	: AV stereo,
	: FM/FM B/G(5.5-5.74),
	: NICAM B/G(5.5-5.85)
	: NICAM D/K(5.5-5.85),
	: NICAM I (6.0-6.52)
Maximum power (W _{RMS})	: 2 x 15

1.1.3 Miscellaneous

Power supply:	
- Mains voltage (V _{AC})	: 220 - 240
- Mains frequency (Hz)	: 50 / 60
Ambient conditions:	
- Temperature range (°C)	: +5 to +40
- Maximum humidity	: 90% R.H.
Power consumption	
- Normal operation (W)	: 42" - 257
	: 50" - 375
- Stand-by (W)	: < 2
Dimensions (WxHxD cm)	: 42" - 111x78x10
	: 50" - 128x88x10
Weight (kg)	: 42" - 42, 50" - 58

1.2 Connections

Note: The following connector colour abbreviations are used (acc. to DIN/IEC 757): Bk= Black, Bu= Blue, Gn= Green, Gy= Grey, Rd= Red, Wh= White, and Ye= Yellow.

1.2.1 Side I/O

SIDE I/O

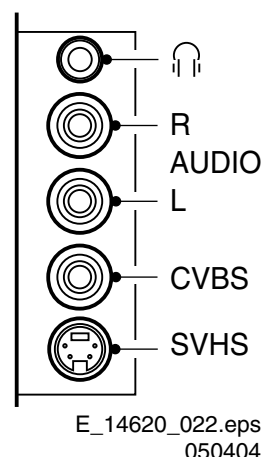


Figure 1-1 Side I/O connections

Mini Jack: Audio Head phone - Out

Bk - Head phone 32 - 600 ohm / 10 mW



Cinch: Video CVBS - In, Audio - In

Ye - Video CVBS 1 V_{PP} / 75 ohm
 Wh - Audio L 0.5 V_{RMS} / 10 kohm
 Rd - Audio R 0.5 V_{RMS} / 10 kohm



SVHS (Hosiden): Video Y/C - In

1 - Ground Y Gnd
 2 - Ground C Gnd
 3 - Video Y 1 V_{PP} / 75 ohm
 4 - Video C 0.3 V_{PP} / 75 ohm



1.2.2 Rear Connections

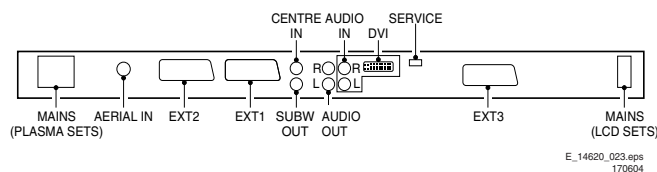
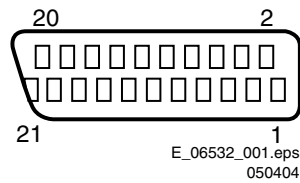


Figure 1-2 Rear connections

Aerial - In

- IEC-type (EU) Coax, 75 ohm



EXT2: Video RGB/YC - In, CVBS - In/Out, Audio - In/Out**Figure 1-3 SCART connector**

1	- Audio R	0.5 V _{RMS} / 1 kohm	⊕→
2	- Audio R	0.5 V _{RMS} / 10 kohm	⊕→
3	- Audio L	0.5 V _{RMS} / 1 kohm	⊕→
4	- Ground Audio	Gnd	⊥
5	- Ground Blue	Gnd	⊥
6	- Audio L	0.5 V _{RMS} / 10 kohm	⊕→
7	- Vid. Blue-in/C-out	0.7 V _{PP} / 75 ohm	⊕→
8	- Function Select	0 - 2 V: INT 4.5 - 7 V: EXT 16:9 9.5 - 12 V: EXT 4:3	⊕→
9	- Ground Green	Gnd	⊥
10	- Easylink P50	0 - 5 V / 4.7 kohm	⊕→
11	- Video Green	0.7 V _{PP} / 75 ohm	⊕→
12	- n.c.		⊥
13	- Ground Red	Gnd	⊥
14	- Ground P50	Gnd	⊥
15	- Video Red/C	0.7 V _{PP} / 75 ohm	⊕→
16	- FBL	0 - 0.4 V: INT 1 - 3 V: EXT / 75 ohm	⊕→
17	- Ground Video	Gnd	⊥
18	- Ground FBL	Gnd	⊥
19	- Video CVBS	1 V _{PP} / 75 ohm	⊕→
20	- Vid. CVBS/Y-in	1 V _{PP} / 75 ohm	⊕→
21	- Shield	Gnd	⊥

EXT1: Video RGB-in, CVBS - In/Out, Audio - In/Out

1	- Audio R	0.5 V _{RMS} / 1 kohm	⊕→
2	- Audio R	0.5 V _{RMS} / 10 kohm	⊕→
3	- Audio L	0.5 V _{RMS} / 1 kohm	⊕→
4	- Ground Audio	Gnd	⊥
5	- Ground Blue	Gnd	⊥
6	- Audio L	0.5 V _{RMS} / 10 kohm	⊕→
7	- Video Blue	0.7 V _{PP} / 75 ohm	⊕→
8	- Function Select	0 - 2 V: INT 4.5 - 7 V: EXT 16:9 9.5 - 12 V: EXT 4:3	⊕→
9	- Ground Green	Gnd	⊥
10	- n.c.		⊥
11	- Video Green	0.7 V _{PP} / 75 ohm	⊕→
12	- n.c.		⊥
13	- Ground Red	Gnd	⊥
14	- Ground Data	Gnd	⊥
15	- Video Red	0.7 V _{PP} / 75 ohm	⊕→
16	- FBL	0 - 0.4 V: INT 1 - 3 V: EXT / 75 ohm	⊕→
17	- Ground Video	Gnd	⊥
18	- Ground FBL	Gnd	⊥
19	- Video CVBS	1 V _{PP} / 75 ohm	⊕→
20	- Video CVBS	1 V _{PP} / 75 ohm	⊕→
21	- Shield	Gnd	⊥

Cinch: Sub woofer - Out, Centre - In

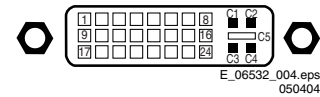
Bu	- Centre	0.5 V _{RMS} / 10 kohm	⊕→
Bk	- Sub woofer	0.5 V _{RMS} / 10 kohm	⊕→

Cinch: Audio - Out

Rd	- Audio - R	0.5 V _{RMS} / 10 kohm	⊕→
Wh	- Audio - L	0.5 V _{RMS} / 10 kohm	⊕→

Cinch: DVI Audio - In

Rd	- Audio - R	0.5 V _{RMS} / 10 kohm	⊕→
Wh	- Audio - L	0.5 V _{RMS} / 10 kohm	⊕→

DVI-I: Digital/Analogue Video - In**Figure 1-4 DVI-I connector**

1	- D2-		⊕→
2	- D2+		⊕→
3	- Shield	Gnd	⊥
4	- D4-		⊕→
5	- D4+		⊕→
6	- DDC_SCL	DDC clock	⊕→
7	- DDC_SDA	DDC data	⊕→
8	- V-sync	0 - 5 V TTL	⊕→
9	- D1-		⊕→
10	- D1+		⊕→
11	- Shield	Gnd	⊥
12	- D3-		⊕→
13	- D3+		⊕→
14	- +5V		⊕→
15	- Ground	Gnd	⊥
16	- HPD	Hot Plug Detect	⊕→
17	- D0-		⊕→
18	- D0+		⊕→
19	- Shield	Gnd	⊥
20	- D5-		⊕→
21	- D5+		⊕→
22	- Shield	Gnd	⊥
23	- CLK+		⊕→
24	- CLK-		⊕→
C1	- Video Red	0.7 V _{PP} / 75 ohm	⊕→
C2	- Video Green	0.7 V _{PP} / 75 ohm	⊕→
C3	- Video Blue	0.7 V _{PP} / 75 ohm	⊕→
C4	- H-sync	0 - 5 V TTL	⊕→
C5	- Ground	Gnd	⊥

Service connector (ComPair)

1	- SDA-S	I ² C Data (0 - 5 V)	⊕→
2	- SCL-S	I ² C Clock (0 - 5 V)	⊕→
3	- Ground	Gnd	⊥

EXT3: Video CVBS - In, Audio - In

1	- n.c.		⊕→
2	- Audio R	0.5 V _{RMS} / 10 kohm	⊕→
3	- n.c.		⊕→
4	- Ground Audio	Gnd	⊥
5	- Ground Blue	Gnd	⊥
6	- Audio L	0.5 V _{RMS} / 10 kohm	⊕→
7	- n.c.		⊕→
8	- Function Select	0 - 2 V: INT 4.5 - 7 V: EXT 16:9 9.5 - 12 V: EXT 4:3	⊕→
9	- Ground Green	Gnd	⊥
10	- n.c.		⊥
11	- n.c.		⊥
12	- n.c.		⊥
13	- Ground Red	Gnd	⊥
14	- Ground Data	Gnd	⊥
15	- n.c.		⊥
16	- n.c.		⊥
17	- Ground Video	Gnd	⊥
18	- Ground FBL	Gnd	⊥
19	- n.c.		⊥
20	- Video CVBS	1 V _{PP} / 75 ohm	⊕→
21	- Shield	Gnd	⊥

1.3 Chassis Overview

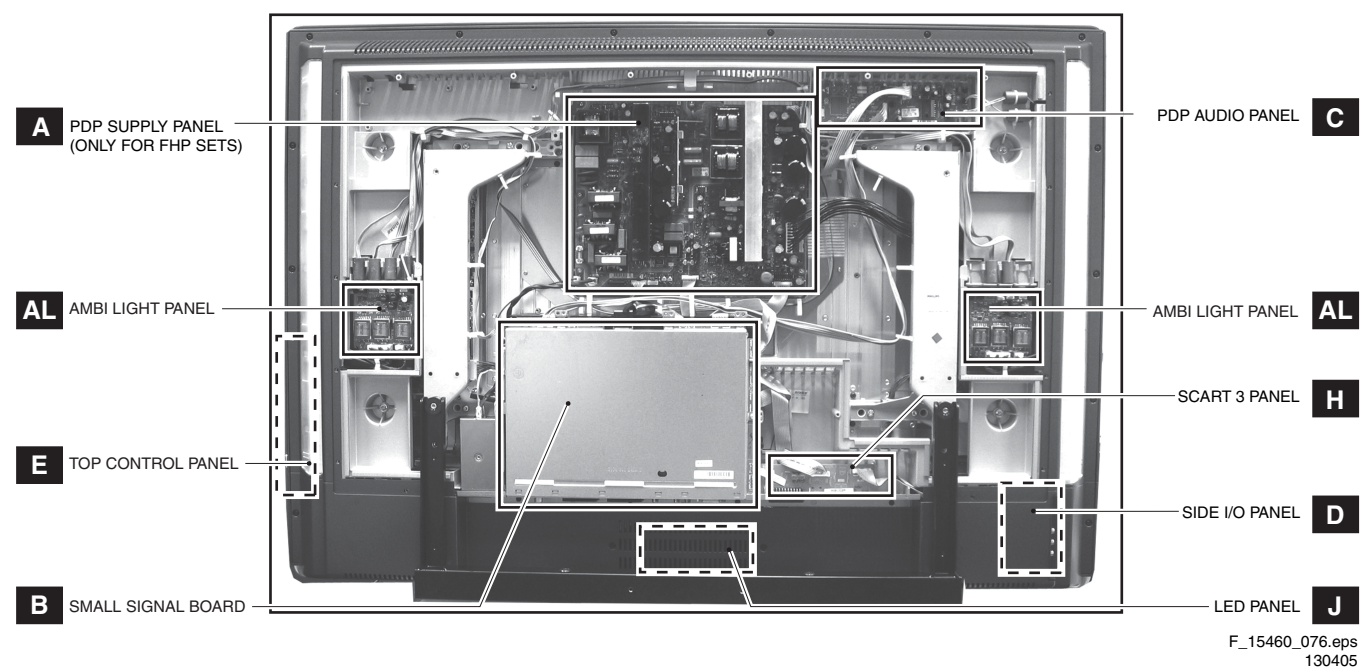


Figure 1-5 PWB location (photo from 42" FHP model)

2. Safety Instructions, Warnings, and Notes

Index of this chapter:

- 2.1 Safety Instructions
- 2.2 Warnings
- 2.3 Notes

2.1 Safety Instructions

Safety regulations require the following **during** a repair:

- Connect the TV to the Mains (AC Power) via an isolation transformer (> 800 VA).
- Replace safety components, indicated by the symbol ▲, only by components identical to the original ones. Any other component substitution (other than original type) may increase risk of fire or electrical shock hazard.

Safety regulations require that **after** a repair, the TV must be returned in its original condition. Pay in particular attention to the following points:

- Route the wire trees correctly and fix them with the mounted cable clamps.
- Check the insulation of the Mains (AC Power) lead for external damage.
- Check the strain relief of the Mains (AC Power) cord for proper function.
- Check the electrical DC resistance between the Mains (AC Power) plug and the secondary side (only for sets that have a Mains (AC Power) isolated power supply):
 1. Unplug the Mains (AC Power) cord and connect a wire between the two pins of the Mains (AC Power) plug.
 2. Set the Mains (AC Power) switch to the "on" position (keep the Mains (AC Power) cord unplugged!).
 3. Measure the resistance value between the pins of the Mains (AC Power) plug and the metal shielding of the tuner or the aerial connection on the TV. The reading should be between 4.5 Mohm and 12 Mohm.
 4. Switch "off" the TV, and remove the wire between the two pins of the Mains (AC Power) plug.
- Check the cabinet for defects, to prevent touching of any inner parts by the customer.

2.2 Warnings

- All ICs and many other semiconductors are susceptible to electrostatic discharges (ESD ▲). Careless handling during repair can reduce life drastically. Make sure that, during repair, you are connected with the same potential as the mass of the TV by a wristband with resistance. Keep components and tools also at this same potential. Available ESD protection equipment:
 - Complete kit ESD3 (small tablemat, wristband, connection box, extension cable and earth cable) 4822 310 10671.
 - Wristband tester 4822 344 13999.
- Be careful during measurements in the high voltage section.
- Never replace modules or other components while the unit is switched "on".
- When you align the TV, use plastic rather than metal tools. This will prevent any short circuits and the danger of a circuit becoming unstable.

2.3 Notes

2.3.1 General

- Measure the voltages and waveforms with regard to the chassis (= tuner) ground ($\perp$), or hot ground ($\rightarrow$), depending on the tested area of circuitry. The voltages and waveforms shown in the diagrams are indicative. Measure them in the

Service Default Mode (see chapter 5) with a colour bar signal and stereo sound (L: 3 kHz, R: 1 kHz unless stated otherwise) and picture carrier at 475.25 MHz for PAL, or 61.25 MHz for NTSC (channel 3).

- Where necessary, measure the waveforms and voltages with (⏏) and without (⏏) aerial signal. Measure the voltages in the power supply section both in normal operation (⏏) and in stand-by (⏏). These values are indicated by means of the appropriate symbols.
- The semiconductors indicated in the circuit diagram and in the parts lists, are interchangeable per position with the semiconductors in the unit, irrespective of the type indication on these semiconductors.
- Manufactured under license from Dolby Laboratories. "Dolby", "Pro Logic" and the "double-D symbol", are trademarks of Dolby Laboratories.

2.3.2 Schematic Notes

- All resistor values are in ohms, and the value multiplier is often used to indicate the decimal point location (e.g. 2K2 indicates 2.2 kohm).
- Resistor values with no multiplier may be indicated with either an "E" or an "R" (e.g. 220E or 220R indicates 220 ohm).
- All capacitor values are given in micro-farads (μ = $\times 10^{-6}$), nano-farads (n= $\times 10^{-9}$), or pico-farads (p= $\times 10^{-12}$).
- Capacitor values may also use the value multiplier as the decimal point indication (e.g. 2p2 indicates 2.2 pF).
- An "asterisk" (*) indicates component usage varies. Refer to the diversity tables for the correct values.
- The correct component values are listed in the Spare Parts List. Therefore, always check this list when there is any doubt.

2.3.3 Rework on BGA (Ball Grid Array) ICs

General

Although (LF)BGA assembly yields are very high, there may still be a requirement for component rework. By rework, we mean the process of removing the component from the PWB and replacing it with a new component. If an (LF)BGA is removed from a PWB, the solder balls of the component are deformed drastically so the removed (LF)BGA has to be discarded.

Device Removal

As is the case with any component that, is being removed, it is essential when removing an (LF)BGA, that the board, tracks, solder lands, or surrounding components are not damaged. To remove an (LF)BGA, the board must be uniformly heated to a temperature close to the reflow soldering temperature. A uniform temperature reduces the risk of warping the PWB. To do this, we recommend that the board is heated until it is certain that all the joints are molten. Then carefully pull the component off the board with a vacuum nozzle. For the appropriate temperature profiles, see the IC data sheet.

Area Preparation

When the component has been removed, the vacant IC area must be cleaned before replacing the (LF)BGA. Removing an IC often leaves varying amounts of solder on the mounting lands. This excessive solder can be removed with either a solder sucker or solder wick. The remaining flux can be removed with a brush and cleaning agent.

After the board is properly cleaned and inspected, apply flux on the solder lands and on the connection balls of the (LF)BGA.

Note: Do not apply solder paste, as this has been shown to result in problems during re-soldering.

Device Replacement

The last step in the repair process is to solder the new component on the board. Ideally, the (LF)BGA should be aligned under a microscope or magnifying glass. If this is not possible, try to align the (LF)BGA with any board markers. So as not to damage neighbouring components, it may be necessary to reduce some temperatures and times.

More Information

For more information on how to handle BGA devices, visit this URL: www.atyourservice.ce.philips.com (needs subscription, not available for all regions). After login, select "Magazine", then go to "Workshop Information". Here you will find Information on how to deal with BGA-ICs.

2.3.4 Lead-free Solder

Philips CE is producing lead-free sets (PBF) from 1.1.2005 onwards.

Identification: The bottom line of a type plate gives a 14-digit serial number. Digits 5 and 6 refer to the production year, digits 7 and 8 refer to production week (in example below it is 1991 week 18).



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Figure 2-1 Serial number example

Regardless of the special lead-free logo (which is not always indicated), one must treat all sets from this date onwards according to the rules as described below.



Figure 2-2 Lead-free logo

Due to lead-free technology some rules have to be respected by the workshop during a repair:

- Use only lead-free soldering tin Philips SAC305 with order code 0622 149 00106. If lead-free solder paste is required, please contact the manufacturer of your soldering equipment. In general, use of solder paste within workshops should be avoided because paste is not easy to store and to handle.

- Use only adequate solder tools applicable for lead-free soldering tin. The solder tool must be able:
 - To reach a solder-tip temperature of at least 400°C.
 - To stabilise the adjusted temperature at the solder-tip.
 - To exchange solder-tips for different applications.
- Adjust your solder tool so that a temperature of around 360°C - 380°C is reached and stabilised at the solder joint. Heating time of the solder-joint should not exceed ~ 4 sec. Avoid temperatures above 400°C, otherwise wear-out of tips will increase drastically and flux-fluid will be destroyed. To avoid wear-out of tips, switch "off" unused equipment or reduce heat.
- Mix of lead-free soldering tin/parts with leaded soldering tin/parts is possible but PHILIPS recommends strongly **to avoid** mixed regimes. If this cannot be avoided, carefully clear the solder-joint from old tin and re-solder with new tin.
- Use only original spare-parts listed in the Service-Manuals. Not listed standard material (commodities) has to be purchased at external companies.
- Special information for lead-free BGA ICs: these ICs will be delivered in so-called "dry-packaging" to protect the IC against moisture. This packaging may only be opened shortly before it is used (soldered). Otherwise the body of the IC gets "wet" inside and during the heating time the structure of the IC will be destroyed due to high (steam-) pressure inside the body. If the packaging was opened before usage, the IC has to be heated up for some hours (around 90°C) for drying (think of ESD-protection!).
Do not re-use BGAs at all!
- For sets produced before 1.1.2005, containing leaded soldering tin and components, all needed spare parts will be available till the end of the service period. For the repair of such sets nothing changes.

In case of doubt whether the board is lead-free or not (or with mixed technologies), you can use the following method:

- Always use the highest temperature to solder, when using SAC305 (see also instructions below).
- De-solder thoroughly (clean solder joints to avoid the mixing of two alloys).

Caution: For BGA-ICs, you **must** use the correct temperature profile, which is coupled to the 12NC. For an overview of these profiles, visit the website www.atyourservice.ce.philips.com (needs subscription, but is not available for all regions). You will find this and more technical information within the "Magazine", chapter "Workshop information".

For additional questions please contact your local repair help desk.

2.3.5 Practical Service Precautions

- **It makes sense to avoid exposure to electrical shock.** While some sources are expected to have a possible dangerous impact, others of quite high potential are of limited current and are sometimes held in less regard.
- **Always respect voltages.** While some may not be dangerous in themselves, they can cause unexpected reactions that are best avoided. Before reaching into a powered TV set, it is best to test the high voltage insulation. It is easy to do, and is a good service precaution.

3. Directions for Use

You can download this information from the following websites:
<http://www.philips.com/support>
<http://www.p4c.philips.com>

4. Mechanical Instructions

Index of this chapter:

- 4.1 Cable Dressing
- 4.2 Service Position
- 4.3 Assy/PWB Removal
- 4.4 Plasma Panel / Glass Plate (Dis)Assembly
- 4.5 Set Re-assembly

Notes:

- Figures below can deviate slightly from the actual situation, due to the different set executions.
- All photo's are made of the 42" FHP model, however the 50" SDI model will not deviate much from it.
- Follow the disassemble instructions in described order.
- Be aware that the internal (gold coloured) frame is made of conducting material. So, be cautious during electrical measurements!

4.1 Cable Dressing

4.1.1 Chassis

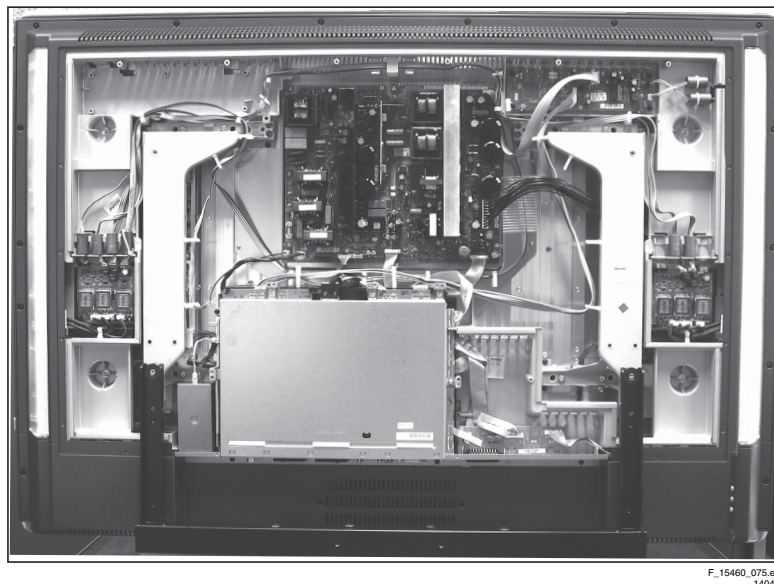


Figure 4-1 Chassis cable dressing

4.2 Service Position

For easy servicing of this set, there are a few possibilities created:

- The buffers from the packaging.
- Foam bars (created for Service).
- Aluminium service stands (created for Service).

4.2.1 Foam Bars

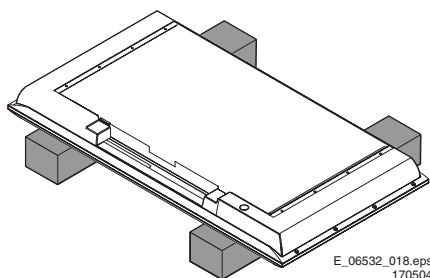


Figure 4-2 Foam bars

The foam bars (order code 3122 785 90580 for two pieces) can be used for all types and sizes of Flat TVs. By laying the TV face down on the (ESD protective) foam bars, a stable situation is created to perform measurements and alignments.

By placing a mirror under the TV, you can monitor the screen.

4.2.2 Aluminium Stands

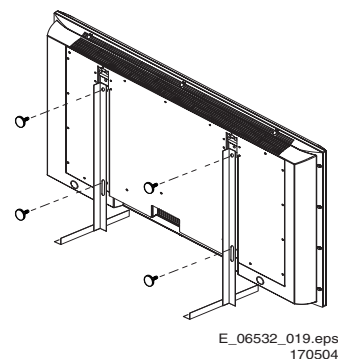


Figure 4-3 Aluminium stands (MkI)

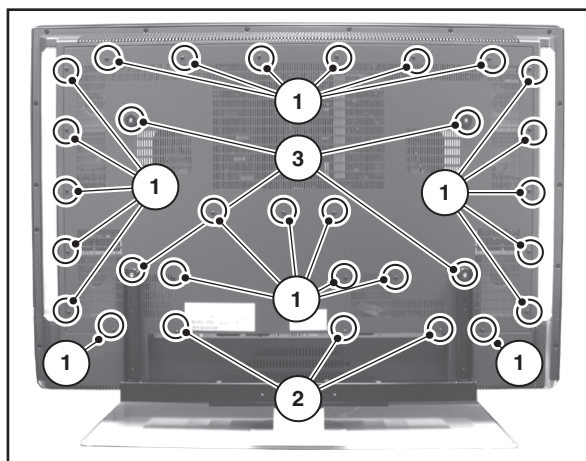
The new (MkII) aluminium stands (order code 3122 785 90690) can also be used to do measurements, alignments, and duration tests. The stands can be (dis)mounted quick and easy by means of sliding them in/out the "mushrooms".

Important: For (older) FTV sets without these "mushrooms", it is obligatory to use the provided screws, otherwise it is possible to damage the monitor inside!.

4.3 Assy/PWB Removal

4.3.1 Metal Back Plate

Caution: Disconnect the mains power cord before you remove the metal back plate.

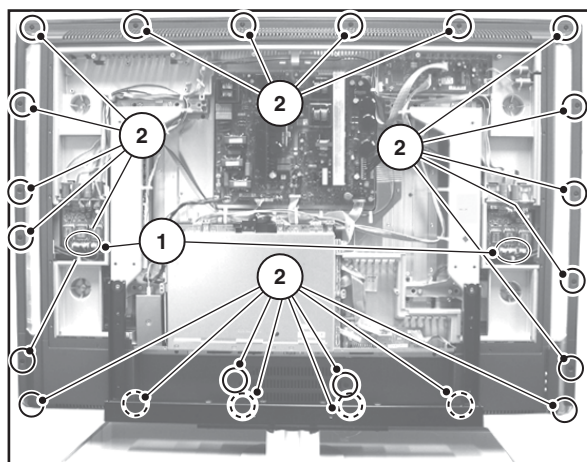


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Figure 4-4 Metal back plate

1. Place the TV set upside down on a table top, using the foam bars (see part "Foam Bars").
Caution: do **not** put pressure on the display, but let the monitor lean on the speakers or the Front cover.
2. Remove all T10 parker screws (1) from the top, centre, and left and right sides of the back plate.
3. Remove all T10 tapping screws (2) from the bottom of the back plate.
4. Remove the four "mushrooms" (3) from the back plate.
5. Lift the back plate from the TV. Make sure that wires and flat foils are not damaged during the back plate removal.

4.3.2 Rear Cover

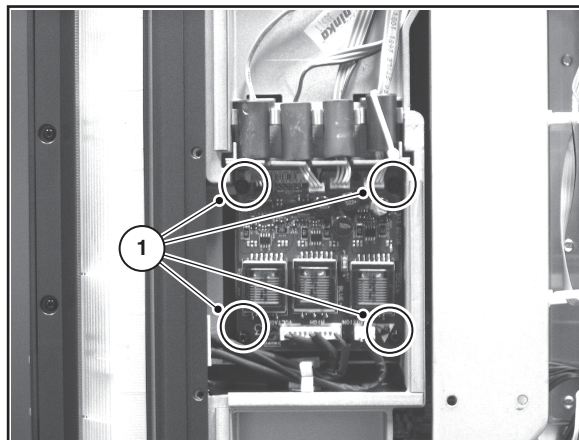


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Figure 4-5 Rear cover

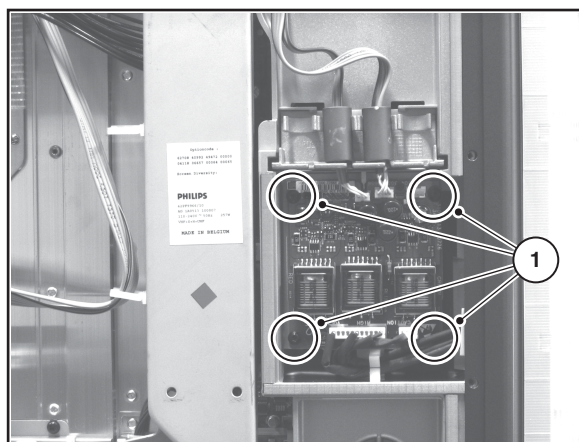
1. Disconnect all connectors (1) at both Ambient Light Inverters that go to the Ambient Lights in the rear cover.
2. Remove all T10 tapping screws (2) around the edges of the rear cover.
3. Lift the rear cover from the TV.

4.3.3 Ambient Light Panel(s)



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Figure 4-6 Ambient light inverter (left side)



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Figure 4-7 Ambient light inverter (right side)

Later models are equipped with two Ambient Light Inverter panels. For the earlier models with one panel, reference is made to the FTP2.2x Service Manual for the correct mechanical instructions.

1. Disconnect all cables from the Ambient Light Inverter panel.
2. Remove all mounting screws (1) from the Ambient Light Inverter panel.
3. Take out the Ambient Light Inverter panel.

4.3.4 Power Supply Panel

1. Disconnect all cables from the Power Supply panel.
2. Remove all mounting screws from the Power Supply panel.
3. Take out the Power Supply panel.

4.3.5 SCART3 Panel

1. Disconnect all cables from the SCART3 panel.
2. Remove the two mounting screws (7) near the SCART3 at the connector plate (see figure "Connector plate").
3. Take out the SCART3 panel.

4.3.6 Audio Panel

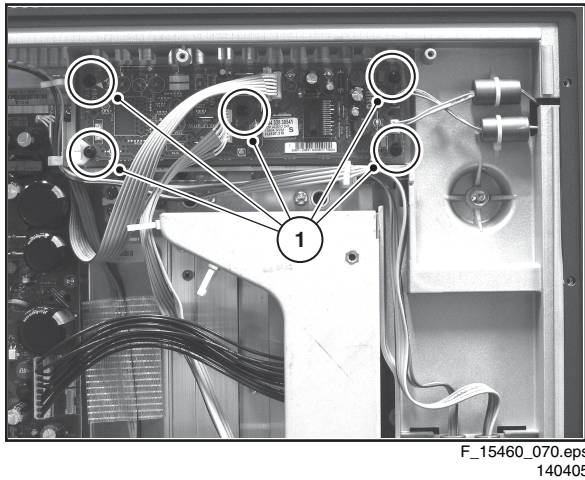


Figure 4-8 Audio panel

1. Disconnect all cables from the Audio panel.
2. Remove all mounting screws (1) from the Audio panel.
3. Take out the Audio panel.

4.3.7 Side I/O Panel

1. Disconnect the cable from the Side I/O panel.
2. Release the clamps and take out the Side I/O panel from its bracket.

4.3.8 Top / Side Control

1. Remove the mounting screws from the Top / Side Control panel bracket.
2. Disconnect the cable.
3. Release the clamps and take out the Top / Side Control panel.

4.3.9 LED Panel

1. Disconnect all cables from the LED panel.
2. Remove the mounting screws from the LED panel.
3. Take out the LED panel.

4.3.10 Speakers

1. Remove all mounting screws.
2. After removing the cover plate, you can access the speakers.
3. Be sure that the foam that makes the unit airtight is not damaged.

4.3.11 SSB

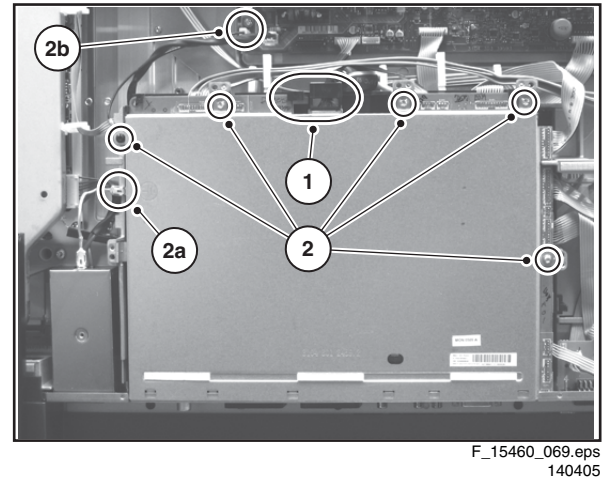


Figure 4-9 SSB top shielding

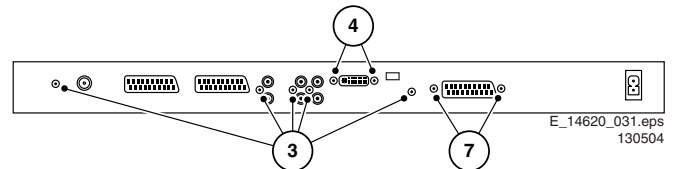


Figure 4-10 Connector plate

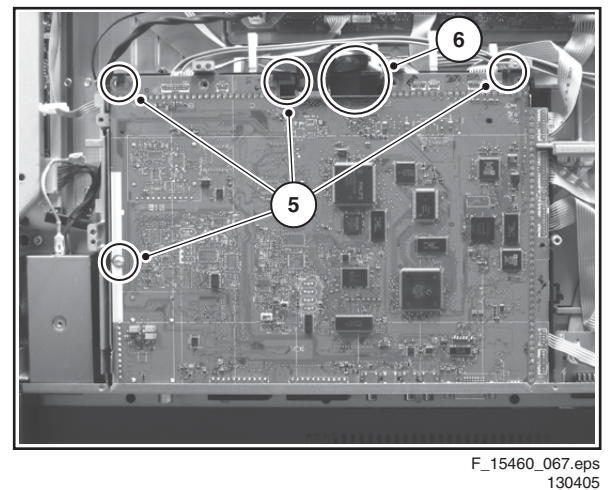


Figure 4-11 SSB removal

1. Remove the LVDS locking bracket (1).
2. Remove all fixing screws (2).
3. Disconnect the grounding wire from the mains filter (2a).
4. Shift, and lift the shielding at the top. The panel hinges at the SCART side.
Caution: do not damage the EMC shielding foam while you remove the shielding.
5. Remove mounting screws (3) from the connector plate. Use a 5 mm socket screwdriver to remove both DVI connector distance bolts (4).
6. Remove the mounting screws from the SSB (5).
7. Disconnect the LVDS cable (6).
8. Lift the SSB, disconnect all cables, and take out the SSB.

4.3.12 Ambient Lights

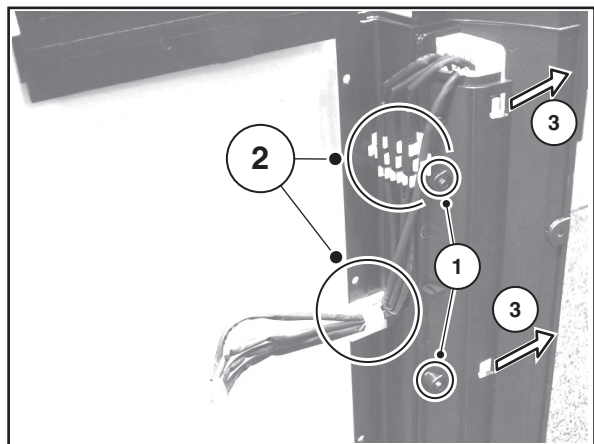
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Figure 4-12 Ambient light (partly shown)

Ambient lights are located in the rear cover of the TV.

1. Unplug the connectors.
2. Remove all mounting Ambient Light screws (1).
3. Move the Ambient light unit to the side (3) and take out the unit.

4.4 Plasma Panel / Glass Plate (Dis)Assembly

Important: Be sure to work in a dust free environment during the following activities. In addition, the use of (fabric) hand gloves is advised.

4.4.1 Plasma Display Panel

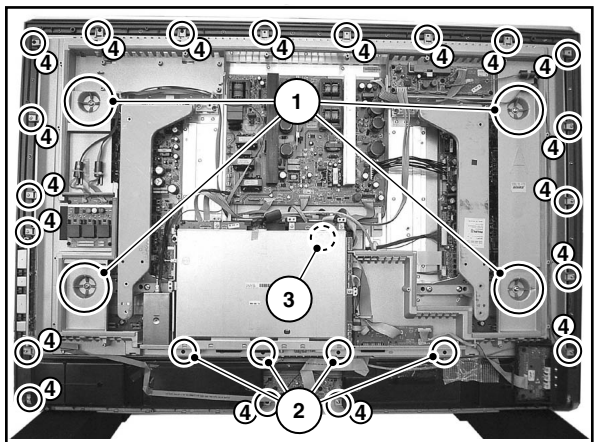
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Figure 4-13 Plasma panel removal

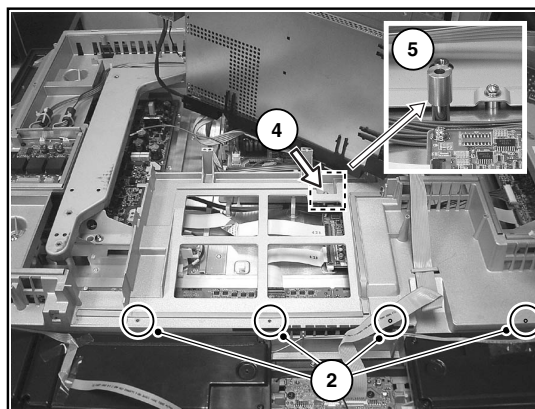
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Figure 4-14 Hidden screw

Disassembly

1. Place the TV set face down on the foam bars. Place the bars at the edges of the TV so they will support the front frame, and not only the glass plate!
2. Remove the four T25 screws (1) that hold the plasma panel.
Note: In some models, the upper left T25 screw is hidden under the Ambient Light Inverter panel. Remove this panel to get access to it.
3. Remove the **fifth** T25 screw that is located near the SSB.
Note: In some models, this fifth screw is hidden **under** the SSB. To get access, you have to remove the four T10 screws (2) that mount the "SSB connector plate" to the frame. Then, lift the complete SSB unit away, so you can remove the hidden screw (4).
4. Remove all T10 tapping screws around the frame (4).
5. Next step is to unplug the following connectors (see also Wiring Diagram in chapter 6):
 - Mains plug on PSU.
 - Audio panel supply plug on PSU.
 - LVDS plug on SSB (first remove the fixation clamp).
 - Ambient light supply plug on PSU.
 - SSB supply plugs on PSU.
 - Side/Top Control plug on LED panel.
 - Side I/O plug on LED panel.
 - SSB grounding wire.
 - Loosen all necessary cables from their clamps.
6. Lift the plastic frame together with all PWBs from the PDP panel.
7. Now the PDP (incl. the PSU panel) can be removed. Lift the panel at the two metal bars from the glass plate.
8. Before sending the plasma panel to the NSO for repair or exchange, remove the PSU panel **and the spacer** (5) that is placed upon the centre mounting stud.

Assembly

In order to centre the (new) plasma panel correctly w.r.t. the glass plate, do the following:

1. Place the (new) plasma panel face down on foam bars.
2. Also, place the front assy (front panel with glass plate) on two other foam bars.
3. Mount the plastic frame on the plasma panel.
Important: Be sure that the spacer (order code 3104 301 62781) is placed upon the centre mounting stud (5).
4. Lift this module (frame and PDP) and place it onto the front assy.
5. Now follow the above described disassembly process in reverse order.

4.4.2 Glass Plate

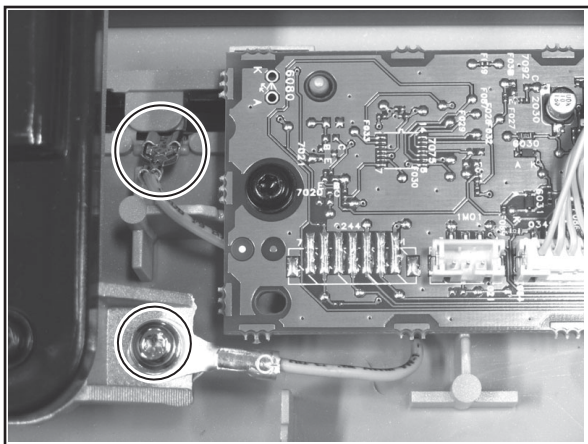
1. Follow the above-described PDP disassembly instructions.
2. After removing the PDP, the glass plate is now accessible.

4.5 Set Re-assembly

To re-assemble the whole set, execute all processes in reverse order.

Note: While re-assembling the TV, make sure that:

- All cables are placed and connected in their original position (see figure "Cable dressing").
- EMC Shielding foam is intact.
- LVDS connector (SSB) is secured with plastic clamp.
- All "grounding" wires are re-connected:
 - Between metal speaker grid and frame (near the LED panel).
 - Between the Mains Filter and the SSB Top Shielding (see figure SSB Top shielding item 2a).
 - Between the SSB Top Shielding and the PSU (see figure SSB Top shielding item 2b).



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Figure 4-15 Grounding wire of metal speaker grid

5. Service Modes, Error Codes, and Fault Finding

Index of this chapter:

- 5.1 Test Points
- 5.2 Service Modes
- 5.3 Problems and Solving Tips (related to CSM)
- 5.4 ComPair
- 5.5 Error Codes
- 5.6 The Blinking LED Procedure
- 5.7 Protections
- 5.8 Repair tips
- 5.9 Software Downloading

- Smart modes.
- Auto store of personal presets.
- Auto user menu time-out.

How to activate SDM

Use one of the following methods:

- Use the standard RC-transmitter and key in the code “062596”, directly followed by the “MENU” button.

Note: It is possible that, together with the SDM, the main menu will appear. To switch it off, push the “MENU” button again.

5.1 Test Points

The chassis is equipped with test points printed on the circuit board assemblies.

Perform measurements under the following conditions:

- Service Default Mode.
- Video: colour bar signal.
- Audio: 3 kHz left, 1 kHz right.

5.2 Service Modes

Service Default Mode (SDM) and Service Alignment Mode (SAM) offer several features for the service technician, while the Customer Service Mode (CSM) is used for communication between a Philips Customer Care Centre (P3C) and a customer.

There is also the option of using ComPair, a hardware interface between a computer (see requirements below) and the TV chassis. It offers the ability of structured troubleshooting, test pattern generation, error code reading, software version read-out, and software upgrading.

Minimum requirements: a Pentium processor, Windows 95/98, and a CD-ROM drive (see also paragraph “ComPair”).

Remark: The silk screen printing is not correct for the SAM/SDM indication. For the correct location of these pins, see figure “Service pads”.

5.2.1 Service Default Mode (SDM)

Purpose

- To create a pre-defined setting, to get the same measurement results as given in this manual.
- To override SW protections.
- To start the blinking LED procedure.

Specifications

Table 5-1 SDM default settings

Region	Freq. (MHz)	Default system
Europe, AP-PAL/Multi	475.25	PAL B/G
NAFTA, AP-NTSC, LATAM	61.25 (ch. 3)	NTSC M

- All picture settings at 50% (brightness, colour, contrast).
- All sound settings at 50%, except volume at 25%.
- All service-unfriendly modes (if present) are disabled, like:
 - (Sleep) timer.
 - Child/parental lock.
 - Blue mute.
 - Automatic volume limiter (AVL).
 - Auto switch-off (when no video signal was received for 10 minutes).
 - Skip/blank of non-favourite pre-sets.

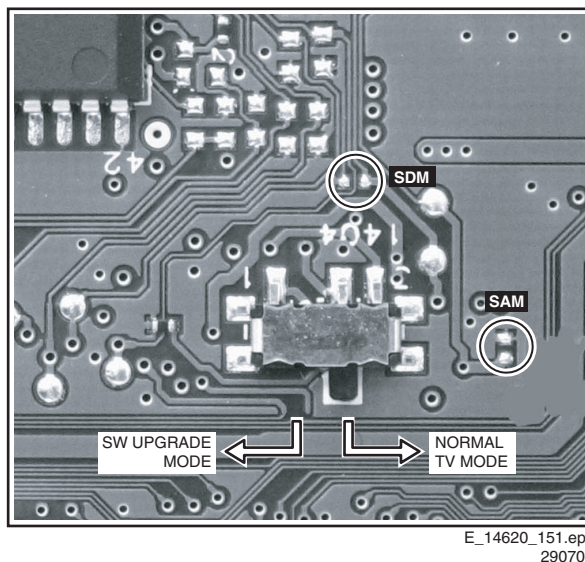


Figure 5-1 Service pads

- Short for a moment the two solder pads on the SSB, with the indication “SDM” (see figure “Service pads”). Activation can be performed in all modes, except when the TV has a problem with the main microprocessor.
- **Caution:** If the SDM is activated via the pins, all the software-controlled protections are de-activated.
- Use the DST-emulation feature of ComPair.
- Use the “DEFAULT” button on the Dealer Service Tool (RC7150).

How to navigate

When you press the “MENU” button on the RC transmitter, the TV will toggle between the SDM and the normal user menu (with the SDM mode still active in the background).

How to exit SDM

Use one of the following methods:

- Switch the TV to STANDBY via the RC-transmitter.
- Press the “EXIT” button on the DST.
- Via a standard customer RC-transmitter: key in “00”-sequence.

5.2.2 Service Alignment Mode (SAM)

Purpose

- To perform (software) alignments.
- To change option settings.
- To easily identify the used software version.
- To view operation hours.
- To display (or clear) the error code buffer.

Specifications

- Operation hours counter.
- Software version.

- Option settings.
- Error buffer reading and erasing.
- Software alignments.

How to activate SAM

Use one of the following methods:

- Via a standard RC transmitter: key in the code “062596” directly followed by the “OSD [i+]” button. After activating SAM with this method a service warning will appear on the screen, you can continue by pressing any digit key on the RC.
- Short for a moment the two solder pads on the SSB with the indication “SAM” (see figure “Service pads”). Depending on the software version, it is possible that a service warning will appear. You can continue by pressing any digit key on the RC.
- Use the DST-emulation feature of ComPair.
- Press the ALIGN button on the DST while the TV is in the normal operation

After activating this mode, “SAM” will appear in the upper right corner of the screen.

Contents of SAM:

- **Operation Hours.** Displays the accumulated total of operation hours (not the stand-by hours).
- **Hardware Info.**
 - **ROM Version.** Displays the date of the software and the software version of the ROM
Ex.: TX24EU_1.0_01234 = AAAABB_X.Y_NNNNN.
 - **AAAA=** the chassis name.
 - **BB=** the region: EU= Europe, AP= Asia Pacific PAL/Multi, AN= Asia Pacific NTSC, US= USA, LT= LATAM.
 - **X.Y=** the software version, where X is the main version number (different numbers are not compatible with one another) and Y is the sub version number (a higher number is always compatible with a lower number).
 - **NNNNN=** last five digits of 12nc code software.
 - **FBX Version.** Displays the software version of the FBX
 - **SW VERSION EPLD.** Displays the software version of the EPLD.
- **Errors.** (followed by maximal 10 errors). The most recent error is displayed at the upper left (for an error explanation see paragraph “Error Codes”).
- **Defective Module.** Here the module that generates the error is displayed. If there are multiple errors in the buffer, which are not all generated by a single module, there is probably another defect. It will then display the message “UNKNOWN” here.
- **Reset Error Buffer.** When you press the “OK” button, the error buffer is reset.
- **Alignments.** This will activate the “ALIGNMENTS” sub-menu.
- **Dealer Options.** Extra features for the dealers.
- **Service Options.** Extra features for Service.
- **Initialise NVM.** When an NVM was corrupted (or replaced) in the former EM3 chassis, the microprocessor replaces the content with default data (to assure that the TV can operate). However, all pre-sets and alignment values are gone now, and option numbers are not correct. Therefore, this was a very drastic way. In this chassis, the procedure is implemented in another way: The moment the processor recognises a corrupted NVM, the “initialise NVM” line will be highlighted. Now, you can do two things (dependent of the service instructions at that moment):
 - Save the content of the NVM via ComPair for development analysis, **before** initialising. This will give the Philips Service department an extra possibility for diagnosis (e.g. when Development asks for this).
 - Initialise the NVM (same as in the past, however now it happens conscious).

- **Store.** All options and alignments are stored when pressing the “OK”-button
- **Functional Test.** All devices are tested via the “OK” button. Eventual errors are displayed in the error buffer. The error buffer is not erased, the content returns when this test is terminated.
- **Daily Menus.** With the “OK” button, you can go to the normal user menu. SAM is still active in the background. With the “MENU” button, you return from the user menu to SAM menu. This feature can be helpful to quickly change some settings in the user menu.
- **SW Maintenance.**
 - **Upgrade.** More info see paragraph Software downloading.
 - **Events.** Not useful for service purposes. In case of specific software problems, the development department can ask for this info.
 - **BDM Info.** Broadcast Debug Menu info. The purpose of this menu is to debug the broadcast, **not** the TV. The menu gives an overview of what is received on the current preset.

Following items are displayed:

Presetnr:	--	UTC:	--:--:--
Presetname:	----	LTO:	--:--:--
		Time:	--:--:--
CNI NVM:	----	Date:	--/--/----
CNI F1:	----		
CNI F2:	----	Time TXT:	--:--:--
CNI VPS:	----	Time 8/30 F1:	--:--:--
Morning Prog:	--	Date 8/30 F1:	--/--/----
Name 8/30 F1:	----	LTO 8/30 F1:	--:--:--
Name 8/30 F2:	----		
Name TXT:	----	WSS G1:	----
Signal Strength:	---	WSS G2:	----
		WSS G3:	----
EPG Service:	---	WSS G4:	----

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Figure 5-2 Broadcast debug menu overview

Table 5-2 Broadcast debug menu explanation

Item	Source	Description
Presetnr	Set	Preset number of the current selected preset.
Presetname	Set	Preset name of the current selected preset.
CNI NVM	Broadcaster	CNI number stored in NVM for the current preset.
CNI F1	Broadcaster	CNI number from transmitted Packet 8/30 Format 1.
CNI F2	Broadcaster	CNI number from transmitted Packet 8/30 Format 2.
CNI VPS	Broadcaster	CNI number from transmitted VPS line.
Morning Prog	Broadcaster	"ARD" or "ZDF" according to dedicated bit in 8/30 Format 1.
Name 8/30 F1	Broadcaster	Name extracted from status message of 8/30 Format 1.
Name 8/30 F2	Broadcaster	Name extracted from status message of 8/30 Format 2.
Name TXT	Broadcaster	Name extracted from TXT header.
Signal Strength	FBX	Noise figure measured for selected preset.
EPG Service	Set	EPG Service stored in NVM for current preset displayed as "TXT", "MCP", "SCP", "OCP".
UTC	Set	UTC (Universal Time Code formerly known as Greenwich Mean Time) used in the TV.
LTO	Set	LTO (Local Time Offset) used in the TV. Used by EPG for all NextView displays. (= Time TXT header - Time 8/30 F1)
Time	Set	Current time running in the TV. Was extracted at start-up, then maintained by software.
Date	Set	Current date running in the TV. Was extracted at start-up, then maintained by software.
Time TXT	Broadcaster	TXT header time from the selected preset.
Time 8/30 F1	Broadcaster	UTC time from 8/30 Format 1.
Date 8/30 F1	Broadcaster	Date from 8/30 Format 1.
LTO 8/30 F1	Broadcaster	LTO from 8/30 Format 1.
WSS G1	Broadcaster	WSS Group 1 (Aspect Ratio) bits 0 1 2 3
WSS G2	Broadcaster	WSS Group 2 (Enhanced Services) bits 4 5 6 7

Item	Source	Description
WSS G3	Broadcaster	WSS Group 3 (Subtitles) bits 8 9 10
WSS G4	Broadcaster	WSS Group 4 (Reserved) bits 11 12 13

How to navigate

- In SAM, you can select the menu items with the "CURSOR UP/DOWN" key on the RC-transmitter. The selected item will be highlighted. When not all menu items fit on the screen, move the "CURSOR UP/DOWN" key to display the next/previous menu items.
- With the "CURSOR LEFT/RIGHT" keys, it is possible to:
 - (De) activate the selected menu item.
 - Change the value of the selected menu item.
 - Activate the selected sub-menu.

How to exit SAM

Use one of the following methods:

- Press the "MENU" button on the RC-transmitter, or
- Switch the TV to STANDBY via the RC-transmitter, or
- Press the "EXIT" button on the DST.

5.2.3 Customer Service Mode (CSM)

Purpose

When a customer is having problems with his TV-set, he can call his dealer. The service technician can then ask the customer to activate the CSM, in order to identify the status of the TV. Now, the service technician can judge the severity of the complaint. In many cases, he can advise the customer how to solve the problem, or he can decide if it is necessary to visit the customer.

The CSM is a read only mode; therefore, modifications in this mode are not possible.

How to activate CSM

Use the following method:

Key in the code "123654" via the standard RC transmitter.

Note: Activation of the CSM is only possible if there is no (user) menu on the screen!

How to navigate

By means of the "CURSOR-DOWN/UP" knob on the RC-transmitter, you can navigate through the menus.

Contents of CSM

CUSTOMER SERVICE MENU 1

- Software Version (example: TX24EU_1.0_01234).** Displays the built-in software version. In case of field problems related to software, software can be upgraded (for more details, see paragraph Software downloading). You will find details of the software versions in the chapter "Software Survey" of the "Product Survey - Colour Television" publication. This publication is generated four times a year.
- Feature Box.** The 12NC-number of the built-in Feature Box software.
- Set Type.** This information is very helpful for a help desk/workshop as reference for further diagnosis. In this way, it is not necessary for the customer to look at the rear of the TV-set.
- Code 1.** Gives the latest five errors of the error buffer. As soon as the built-in diagnose software has detected an error the buffer is adapted. The last occurred error is displayed on the left most position. Each error code is displayed as a 3-digit number. When less than 10 errors occur, the rest of the buffer is empty (000). See also paragraph Error Codes for a description.
- Code 2.** Gives the first five errors of the error buffer. See also paragraph Error Codes for a description.
- Volume.** Gives the last status of the volume as set by the customer. The value can vary from 0 (volume is minimum)

to 100 (volume is maximum). Volume values can be changed via the volume key on the RC-transmitter.

- Brightness.** Gives the last status of the brightness as set by the customer. The value can vary from 0 (brightness is minimum) to 100 (brightness is maximum). Brightness values can be changed via the "CURSOR LEFT" and "CURSOR RIGHT" keys on the RC-transmitter after pressing the "MENU" button and selecting "PICTURE" and "BRIGHTNESS".
- Contrast.** Gives the last status of the contrast as set by the customer. The value can vary from 0 (contrast is minimum) to 100 (contrast is maximum). Contrast values can be changed via "CURSOR LEFT" and "CURSOR RIGHT" keys on the RC-transmitter after pressing the "MENU" button and selecting "PICTURE" and "CONTRAST".
- Colour.** Gives the last status of the colour saturation, as set by the customer. The value can vary from 0 (colour is minimum) to 100 (colour is maximum). Colour values can be changed via "CURSOR LEFT" and "CURSOR RIGHT" keys on the RC-transmitter after pressing the "MENU" button and selecting "PICTURE" and "COLOUR".
- Hue.** Only relevant for NTSC-signals (e.g. some NTSC-DVD-discs).

CUSTOMER SERVICE MENU 2

- Sharpness.** Gives the sharpness value. The value can vary from 0 (sharpness is minimum) to 7 (sharpness is maximum). In case of bad antenna signals, a too high value of the sharpness can result in a noisy picture. Sharpness values can be changed via the "CURSOR LEFT" and "CURSOR RIGHT" keys on the RC-transmitter after pressing the "MENU" button and selecting "PICTURE" and "SHARPNESS".
- Headphone Volume.** Gives the last status of the headphone volume, as set by the customer. The value can vary from 0 (volume is minimum) to 100 (volume is maximum). Headphone volume values can be changed via the "CURSOR LEFT" and "CURSOR RIGHT" keys on the RC-transmitter after pressing the "MENU" button and selecting "SOUND" and "HEADPHONE VOLUME".
- Dolby.** Indicates whether the received transmitter transmits Dolby sound ("ON") or not ("OFF"). Attention: The presence of Dolby can only be tested by the software on the Dolby Signalling bit. If a Dolby transmission is received without a Dolby Signalling bit, this indicator will show "OFF" even though a Dolby transmission is received.
- Surround Mode.** Indicates the by the customer selected surround mode (or automatically chosen mode). Possible values are "OFF", "INCREDIBLE SURROUND" OR "DOLBY VIRTUAL". These settings can be influenced after pressing the "MENU" button and selecting "SOUND" and "SURROUND MODE". It can also have been selected automatically by signalling bits (internal software).
- Tuner Frequency.** Indicates the frequency the selected transmitter is tuned to. The tuner frequency can be changed via the "CURSOR LEFT" and "CURSOR RIGHT" keys for fine tune after opening the installation menu and selecting "INSTALL" and "MANUAL INSTALL".
- Digital Option.** Gives the selected digital mode, "PROGRESSIVE SCAN", "MOVIE PLUS" or "PIXEL PLUS". Change via "MENU", "PICTURE", "DIGITAL OPTIONS".
- Centre Trim.** Not applicable for this set.
- TV System.** Gives information about the video system of the selected transmitter.
 - BG: PAL BG signal received.
 - DK: PAL DK signal received.
 - I: PAL I signal received.
 - L/La: SECAM L/La signals received.
 - M: NTSC M signal received with video carrier on 38.9 MHz.

CUSTOMER SERVICE MENU 3

- **Balance.** Indicates the balance settings, between “-50” and “+50”. Change via “MENU”, “SOUND”, and “BALANCE”. Not applicable for Dolby Pro Logic sets.
- **Centre Mode.** Not applicable for this TV.
- **DNR.** Gives the selected DNR setting (Dynamic Noise Reduction), “OFF”, “MINIMUM”, “MEDIUM”, or “MAXIMUM”. Change via “MENU”, “PICTURE”, “DNR”
- **Noise Figure.** Gives the noise ratio for the selected transmitter. This value can vary from 0 (good signal) to 127 (average signal) and to 255 (bad signal). For some software versions, the noise figure will only be valid when “Active Control” is set to “medium” or “maximum”.
- **Source.** Indicates which source is used and the video/ audio signal quality of the selected source.
Example: Tuner, Video/NICAM) Source: “TUNER”, “EXT1”, “EXT2”, “EXT3”, “EXT4”, “SIDE”, “AV1”, “AV2”, “AV3” or “AV4”. Video signal quality: “VIDEO”, “S-VIDEO”, “RGB 1FH”, “YPBPR 1FH 480P”, “YPBPR 1FH 576P”, “YPBPR 1FH 1080I”, “YPBPR 2FH 480P”, “YPBPR 2FH 576P”, “YPBPR 2FH 1080I”, “RGB 2FH 480P”, “RGB 2FH 576P” or “RGB 2FH 1080I”. Audio signal quality: “STEREO”, “SPDIF 1”, “SPDIF 2”, or “SPDIF”.
- **Audio System.** Gives information about the audio system of the selected transmitter: “ANALOGUE MONO”, “ANALOGUE STEREO”, “PCM 2/0”, “DD 1/0”, “DD 2/0 Ltrt”, “DD 2/0 L0R0”, “DD 2/1”, “DD 2/2”, “DD 3/0”, “DD 3/1”, “DD 3/2”, “DD 1+1”, “MPEG 1/0”, “MPEG 2/0”, “MPEG 2/0 Ltrt”, “MPEG 2/1”, “MPEG 2/2”, “MPEG 3/0”, “MPEG 3/1”, “MPEG 3/2”, “MPEG 1+1” or “MPEG 2+2”.
- **Tuned Bit.** Gives information about the tuning method of the stored pre-set. If a channel is found via “automatic installation”, you will see the value “YES”. When you change this (automatically found) frequency via “fine tune” adjustment (installation menu - manual installation), the displayed value will change to “NO”. Therefore, when you see the value “NO” in this line, it is an indication that the received channel is a non-standard signal (e.g. of a VCR).
- **Surround Speakers.** Not applicable in this set.
- **On Timer.** Indicates if the “On Timer” is set “ON” or “OFF” and if the timer is “ON” also displays start time, start day and program number. Change via “MENU”, “TV”, “FEATURES”, and “ON TIMER”.
- **Preset Lock.** Indicates if the selected preset has a child lock: “LOCKED” or “UNLOCKED”. Change via “MENU”, “TV”, “FEATURES”, “CHILD LOCK”, and “CUSTOM LOCK”.

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- **Child Lock.** Indicates the last status of the general child lock: “UNLOCK”, “LOCK”, or “CUSTOM LOCK”. Change via “MENU”, “TV”, “FEATURES”, “CHILD LOCK”, and “LOCK”.
- **Age Lock.** Indicates the last status of the EPG rating for child lock: “OFF”, “4 YEARS”, “6 YEARS”, “8 YEARS”, “10 YEARS”, “12 YEARS”, “14 YEARS” or “16 YEARS”. This is only displayed if child lock is set to “CUSTOM LOCK”
- **Lock After.** Indicates at what time the child lock is set: “OFF” or e.g. “18:45” (lock time). This is only displayed if child lock is set to “CUSTOM LOCK”
- **Category Lock.** Indicates the last status of the EPG theme child lock: “MOVIES”, “NEWS”, “SHOWS”, “SPORTS”, “CHILDREN”, “MUSIC”, “CULTURE”, or “SERIES”. This is only displayed if child lock is set to “CUSTOM LOCK”. It is possible that more than one value is shown.
- **Program Category.** Indicates the theme of the selected transmitter: “MOVIES”, “NEWS”, “SHOWS”, “SPORTS”, “CHILDREN”, “MUSIC”, “CULTURE”, or “SERIES”.
- **TV Ratings Lock.** Only applicable for US.
- **Movie Ratings Lock.** Only applicable for US.
- **V-Chip TV Status.** Only applicable for US.

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- **V-Chip Movie Status.** Only applicable for US.

- **Options 1.** Gives the option codes of option group 1 as set in SAM (Service Alignment Mode).
- **Options 2.** Gives the option codes of option group 2 as set in SAM (Service Alignment Mode).
- **AVL.** Indicates the last status of AVL (Automatic Volume Level): “ON” or “OFF”. Change via “MENU”, “TV”, “SOUND”, “AVL”
- **Delta Volume.** Indicates the last status of the delta volume for the selected preset as set by the customer: from “-12” to “+12”. Change via “MENU”, “TV”, “SOUND”, “DELTA VOLUME”.
- **Front Spkr Dist.** Not applicable for this TV.
- **Front Spkr Dist.** Not applicable for this TV.

How to exit CSM

Use one of the following methods:

- After you press a key on the RC-transmitter (with exception of the “CHANNEL”, “VOLUME” and digit (0-9) keys), or
- After you switch the TV-set “OFF” with the mains switch.

Note: When you de-activate CSM, it is possible (depending on the software version) that the size of the picture changes. This can be solved by pushing “P+” and then “P-”.

5.3 Problems and Solving Tips (related to CSM)

Note: Below described problems are all related to the TV settings (visible in the CSM menu). The procedures to change the value (or status) of the different settings are described above. New value(s) are automatically stored.

5.3.1 Picture Problems**Snowy/noisy picture**

1. Check in CSM line NOISE FIGURE. In case the value is “127” or higher, and the value is also high on other programs, check the aerial cable/aerial system. For some software versions, the noise figure will only be valid when “Active Control” is set to “medium” or “maximum”.
2. Check in CSM lines SHARPNESS and NOISE FIGURE. In case the value of line SHARPNESS is “3” or “4” and the value of line NOISE FIGURE is high (“127” or higher), decrease the “Sharpness” value.

Picture too dark

1. Press “Menu”, “TV”, “Picture”, “Smart Picture”. In case the picture improves, increase the “Brightness” or the “Contrast” value. The new value(s) are automatically stored (in “personal” pre-set) for all TV channels.
2. Check in CSM line BRIGHTNESS and CONTRAST. If the value of these lines is low (< “10”), increase the “Brightness” or the “Contrast” value via the user menu.

Picture too bright

1. Press “Menu”, “TV”, “Picture”, “Smart Picture”. In case the picture improves, decrease the “Brightness” or the “Contrast” value. The new value(s) are automatically stored (in “personal” pre-set) for all TV channels.
2. Check in CSM lines BRIGHTNESS and CONTRAST. If the value of these line is high (> 50), decrease the “Brightness” value or increase the “Contrast” value via the user menu.

White line around picture elements and text

1. Press “Menu”, “TV”, “Picture”, “Smart Picture”. In case the picture improves, decrease the “Sharpness” value. The new value is automatically stored (in “personal” pre-set) for all TV channels.
2. Check in CSM line “Sharpness”. If the value is high, decrease it. The new value is automatically stored for all TV channels.

No picture

Check in CSM line TUNED BIT. In case the value is "No", install the required program again. Open the installation menu and perform manual installation.

No picture or unstable picture

A scrambled or decoded signal is received.

Black and white picture

Check in CSM line COLOUR. In case the value is low (< "10"), increase the "Colour" value via the user menu. The new value is automatically stored for all TV channels.

No colours/colour lines around picture elements or colours not correct or unstable picture

1. Check in CSM line TV SYSTEM. If a "strange" system pops up, something has gone wrong during installation. Re-install the channel.
2. If in CSM line TV SYSTEM is "L", then the installed system for this pre-set is "France" (SECAM standard). If the country requires a PAL standard, "West Europe" is required. Install the required program again: open the installation menu and perform manual installation. Select system "West Europe".

Menu text not sharp enough

1. Press "MENU", "TV", "PICTURE", "SMART PICTURE". In case picture improves, decrease the contrast value. The new value(s) are automatically stored for all TV channels.
2. Check line "Contrast". If the value is high, decrease the contrast value.

5.3.2 Sound Problems**No sound from left and right speaker**

Check line 6 "Volume". The value is low. Increase the value of "Volume". The new value(s) are automatically stored (in "personal" pre-set) for all TV channels.

5.4 ComPair**5.4.1 Introduction**

ComPair (Computer Aided Repair) is a service tool for Philips Consumer Electronics products. ComPair is a further development on the European DST (service remote control), which allows faster and more accurate diagnostics. ComPair has three big advantages:

- ComPair helps you to quickly get an understanding on how to repair the chassis in a short time by guiding you systematically through the repair procedures.
- ComPair allows very detailed diagnostics (on I²C level) and is therefore capable of accurately indicating problem areas. You do not have to know anything about I²C commands yourself because ComPair takes care of this.
- ComPair speeds up the repair time since it can automatically communicate with the chassis (when the microprocessor is working) and all repair information is directly available. When ComPair is installed together with the SearchMan electronic manual of the defective chassis, schematics and PWBs are only a mouse click away.

5.4.2 Specifications

ComPair consists of a Windows based fault finding program and an interface box between PC and the (defective) product. The ComPair interface box is connected to the PC via a serial or RS232 cable.

For this chassis, the ComPair interface box and the TV communicate via a bi-directional service cable via the service connector.

The ComPair fault finding program is able to determine the problem of the defective television. ComPair can gather diagnostic information in two ways:

- Automatic (by communication with the television): ComPair can automatically read out the contents of the entire error buffer. Diagnosis is done on I²C level. ComPair can access the I²C bus of the television. ComPair can send and receive I²C commands to the micro controller of the television. In this way, it is possible for ComPair to communicate (read and write) to devices on the I²C buses of the TV-set.
- Manually (by asking questions to you): Automatic diagnosis is only possible if the micro controller of the television is working correctly and only to a certain extent. When this is not the case, ComPair will guide you through the fault finding tree by asking you questions (e.g. *Does the screen give a picture? Click on the correct answer: YES / NO*) and showing you examples (e.g. *Measure test-point I7 and click on the correct oscillogram you see on the oscilloscope*). You can answer by clicking on a link (e.g. text or a waveform picture) that will bring you to the next step in the fault finding process.

By a combination of automatic diagnostics and an interactive question / answer procedure, ComPair will enable you to find most problems in a fast and effective way.

Beside fault finding, ComPair provides some **additional features** like:

- Emulation of the Dealer Service Tool (DST), which is not supported any more.
- If both ComPair and SearchMan (Electronic Service Manual) are installed, all the schematics and the PWBs of the TV are available by clicking on the appropriate hyperlink.
Example: *Measure the DC-voltage on capacitor C2568 (Schematic/Panel) at the Mono-carrier.*
 - Click on the "Panel" hyperlink to automatically show the PWB with a highlighted capacitor C2568.
 - Click on the "Schematic" hyperlink to automatically show the position of the highlighted capacitor.

5.4.3 Stepwise Start-up

Under normal circumstances, a fault in the power supply, or an error during start-up, will switch the television to protection mode. ComPair can take over the initialisation of the television. In this way, it is possible to distinguish which part of the start-up routine (hence which circuitry) is causing the problem. Take notice that the transition between two steps can take some time, so give the TV some time to reach a stable state. During the transition time, the LED can blink strangely.

Stepwise start-up explanation

This is realised via ComPair and is very helpful when a **protection** is activated (see also chapter "Protections"). The following diagram shows the start-up procedure of the TV. Every step of the stepwise start-up (also called trapped start-up) in the diagram corresponds with the number of times the LED blinks.

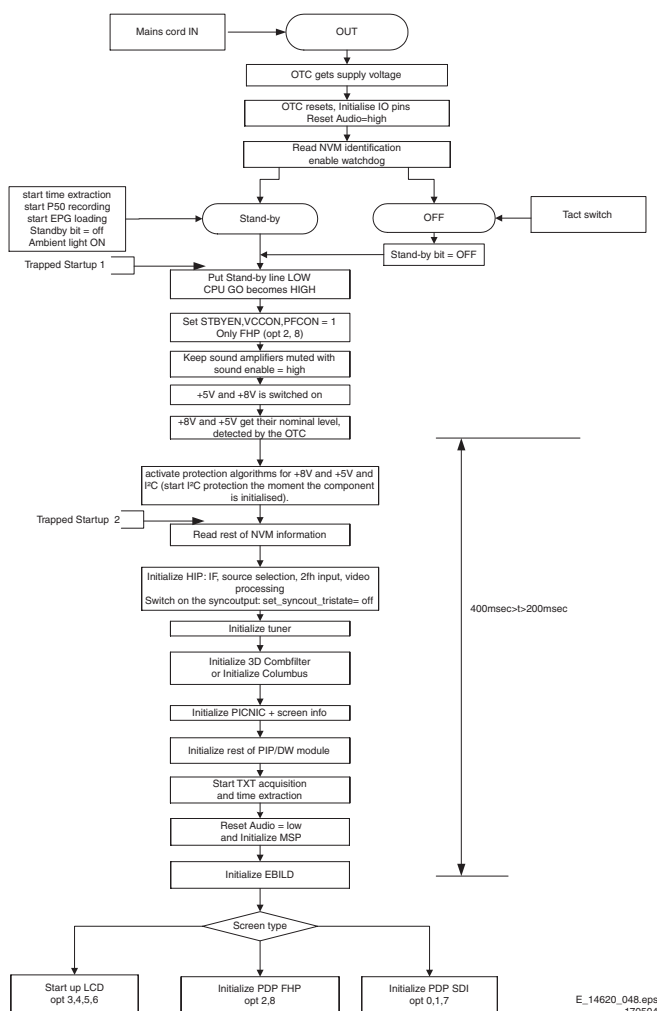


Figure 5-3 Stepwise start-up

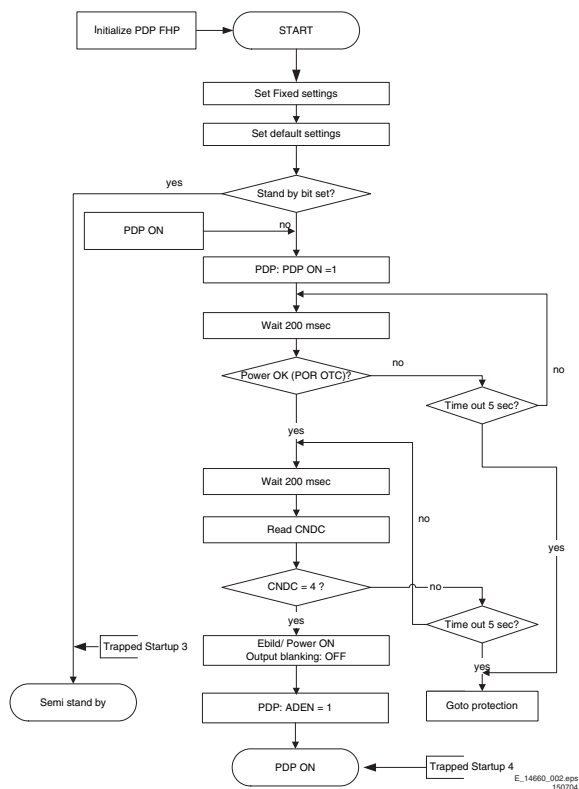


Figure 5-4 Stepwise start-up part 2: Initialise FHP

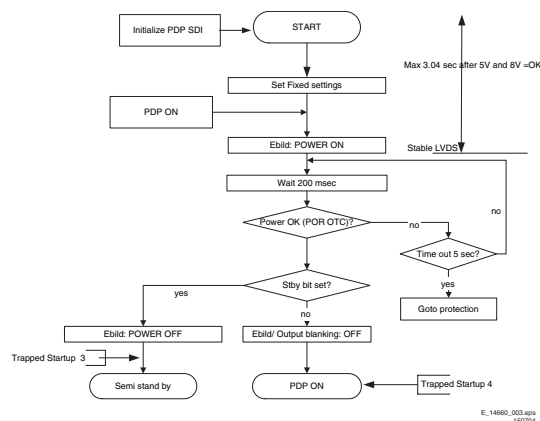


Figure 5-5 Stepwise start-up part 2: Initialise SDI (*)

Notes (*):

- When the TV is in stepwise mode and, due to stepping-up, a protection is activated, the TV will really go into protection (blinking LED). The TV will not leave the stepwise mode however. If state X is the state where the TV went to protection, stepwise start-up will return to state X-1. At state (X-1) diagnostic measurements can be performed. Also, in the short time the TV is in state X but not yet in protection, you can also do some measurements.
- Stepwise start-up can NOT be used for Samsung displays (SDI). The TV will not react in a proper way, due to other timing specifications.

5.4.4 How To Connect

This is described in the chassis fault finding database in ComPair.

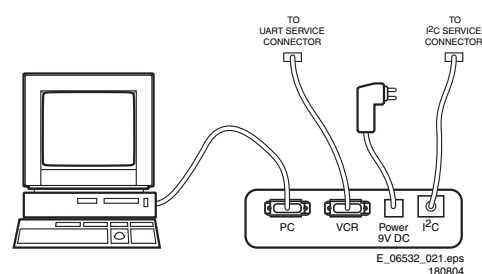


Figure 5-6 ComPair interface connection

5.4.5 How To Order

ComPair order codes (EU/AP/LATAM):

- Starter kit ComPair32/SearchMan32 software and ComPair interface (excl. transformer): 3122 785 90450.
- ComPair interface (excl. transformer): 4822 727 21631.
- Starter kit ComPair32 software (registration version): 3122 785 60040.
- Starter kit SearchMan32 software: 3122 785 60050.
- ComPair32 CD (update): 3122 785 60070 (year 2002), 3122 785 60110 (year 2003 onwards).
- SearchMan32 CD (update): 3122 785 60080 (year 2002), 3122 785 60120 (year 2003), 3122 785 60130 (year 2004).
- ComPair firmware upgrade IC: 3122 785 90510.
- Transformer (non-UK): 4822 727 21632.
- Transformer UK: 4822 727 21633.
- ComPair interface cable: 3122 785 90004.
- ComPair interface extension cable: 3139 131 03791.
- ComPair UART interface cable: 3122 785 90630.

Note: If you encounter any problems, contact your local support desk.

5.5 Error Codes

- Via ComPair.

5.5.1 Introduction

The error code buffer contains all detected errors since the last time the buffer was erased. The buffer is written from left to right, new errors are logged at the left side, and all other errors shift one position to the right.

When an error has occurred, the error is added to the list of errors, provided the list is not full or the error is a protection error.

When an error occurs and the error buffer is full, then the new error is not added, and the error buffer stays intact (history is maintained), except when the error is a protection error.

To prevent that an occasional error stays in the list forever, the error is removed from the list after 50+ operation hours.

When multiple errors occur (errors occurred within a short time span), there is a high probability that there is some relation between them.

5.5.2 How to read the Error Buffer

- Use one of the following methods:
- On screen via the SAM (only if you have a picture).
Examples:
 - 0 0 0 0**: No errors detected
 - 6 0 0 0**: Error code 6 is the last and only detected error
 - 9 6 0 0**: Error code 6 was first detected and error code 9 is the last detected error
 - Via the blinking LED procedure (when you have no picture). See next paragraph.

5.5.3 How to clear the Error Buffer

- Use one of the following methods:
- By activation of the “RESET ERROR BUFFER” command in the SAM menu.
 - With a normal RC, key in sequence “MUTE” followed by “**062599**” and “OK”.
 - When you transmit the commands “DIAGNOSE” - “99” - “OK” with ComPair (or with a DST).
 - If the content of the error buffer has not changed for 50+ hours, it resets automatically.

5.5.4 Error Codes

In case of non-intermittent faults, clear the error buffer before you begin the repair. This to ensure that old error codes are no longer present. Before clearing the buffer, write down the content, as this history can give you significant information. If possible, check the entire contents of the error buffer. In some situations, an error code is only the result of another error code and not the actual cause (e.g., a fault in the protection detection circuitry can also lead to a protection).

There are various errors:

- I²C device errors.
- I²C bus errors.
- Protection errors.
- Errors not related to an I²C device, but of importance:
 - FEM (Falconic with Embedded Memory) (Error 26)**: at start-up, after initialisation of the PICNIC, the presence of the FEM can be checked.

Table 5-3 Error Code Overview

Error	Device	Description	Def. item	Def. Module indication	Diagr.
1	M24Cxx	NVM, spontaneous blinking error 1	7011	-	B5a
3	SAA4978	PICNIC	7713	Feature Box	B3a
4	Supply 5 V	5V protection	-	+5V Supply	B5a
5	Supply 8 V	8V protection	-	+8V Supply	B5a
6	Slow I ² C bus blocked	Spontaneous blinking error 6	-	Slow I ² C Blocked	-
8	TDA932x	HIP High-end Input Processor	7323	Chroma IF IO	B2
13	UV1318/...	Tuner protection	1T01	Tuner	B13a
14	MSPxxxx	ITT sound processor	7A02	Audio module	B6a
18	Fast I ² C bus blocked	Spontaneous blinking error 18	-	Fast I ² C Blocked	-
21	M62320	I/O Expander	7P56	Video Dual Screen	B15b
26	SAA4998	FEM (Falconic with Embedded Memory)	7760	+3V (FBX) Supply	B3b
27	T6TX5	Eagle 1C	7720	+3V (FBX) Supply	B3c
32	M29W400xx	Flash Ram (EPG)	7012	EPG Memory	B5a
35	T6TU5	Columbus	7752	Video Control	B3d
55	DC/DC converter	One of the voltages is not ok + protection error	-	MSB	-
76	Audio supply	Audio supply protection	-	-	-
118	AD9883A	AD converter	7L01	HD	B19a
121	EPLD	EPLD error	7V01	Video control	B19d

Note: If error 3 or error 55 appears, sometimes error 16 is also logged. Error 16 is a non existing error.

- Note:**
- Error codes 1, 6, or 18 are protection codes and in this case, supplies of some circuits will be switched “off”. Also, in protection, the LED will blink the number of times equivalent to the most recent error code.

5.6 The Blinking LED Procedure

5.6.1 Introduction

Via this procedure, you can make the contents of the error buffer visible via the front LED. This is especially useful for fault finding, when there is no picture.

When the SDM is activated, the front LED will show (blink) the contents of the error-buffer. Error-codes > 10 are shown as follows:

- A long blink of 750 ms (which is an indication of the decimal digit),
- A pause of 1.5 s,
- “n” short blinks (where “n” = 1 - 9),
- When all the error-codes are displayed, the sequence finishes with a LED blink of 3 s,
- The sequence starts again.

Note: For error codes >100, the first two digits (hundred-and-ten) are considered as one digit (one long blink)

Example: Error 12 9 6 121 0.

After activation of the SDM, the front LED will show:

- 1 long blink of 750 ms (which is an indication of the decimal digit) followed by a pause of 1.5 s,
- 2 short blinks followed by a pause of 3 s,
- 9 short blinks followed by a pause of 3 s,
- 6 short blinks followed by a pause of 3 s,
- 12 long blinks of 750 ms (which is an indication of “120”) followed by a pause of 1.5 s,
- 1 short blink followed by a pause of 3 s,
- 1 long blink of 3 s to finish the sequence,
- The sequence starts again.

Note: If errors 1, 6, or 18 occur, the LED always gives the last occurred error even if the TV is NOT in service mode.

5.6.2 How to Activate

Use one of the following methods:

- Activate the SDM (only via soldering pads marked “SDM” on SSB, see figure “Service pads”). The blinking front LED will show the entire contents of the error buffer (this works in “normal operation” mode and in “protection” mode).
- Transmit the commands “MUTE” - “062500” - “OK” with a normal RC. The complete error buffer is shown. Take notice that it takes some seconds before the blinking LED starts.
- Transmit the commands “MUTE” - “06250x” - “OK” with a normal RC (where “x” is a number between 1 and 5). When x= 1 the last detected error is shown, x= 2 the second last error, etc.... Take notice that it takes some seconds before the blinking LED starts.
- “DIAGNOSE X” with the DST (where “x” is a number between 1 and 5). When x= 1 the last detected error is shown, x= 2 the second last error, etc.... When x = 0 all errors are shown.

5.7 Protections

Note: With Samsung PDP displays (SDI V4) boards it is possible that for some errors the blinking LED procedure does not start immediately (e.g. error 18). When the error occurs, the TV goes to protection and it is possible that you have to wait 30 seconds before the blinking LED procedure starts.

5.7.1 Introduction

This chassis has only one microprocessor (OTC), which remains active during Stand-by. This because power of the microprocessor and the attached memory chip set is coming

from the 3V3 supply, which is derived from the 5V Stand-by-circuitry. Therefore, in both Power-on as in Stand-by mode, the microprocessor is connected to this power supply.

If a fault situation is detected, an error code will be generated and if necessary, the TV is put in protection mode. The protection mode is indicated by the blinking of the front LED at a frequency of 3 Hz (or by a coded blinking in special cases).

The content of the error buffer can be read via the service menu (SAM), the blinking LED procedure or via DST/ComPair.

To get a quick diagnosis, this chassis has three service-modes implemented:

- The **Customer Service Mode** (CSM).
- The **Service Default Mode** (SDM). Start-up of the TV in a predefined way.
- The **Service Alignment Mode** (SAM). In this mode, items of the TV can be adjusted via a menu.

You can activate both SDM and SAM modes via the “service pads” on the SSB (see figure “Service pads”), via an RC-transmitter (DST or standard RC), or via ComPair. It is not possible to activate the SAM in “stand-by”; the TV has to be in “normal operation” mode.

The “Protection Diagram” shows the structure of the protection system. See diagram below.

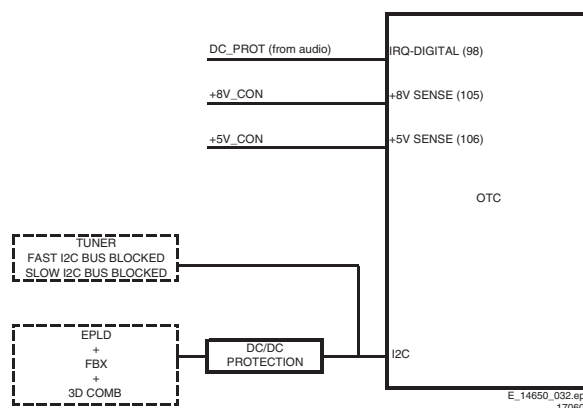


Figure 5-7 Protection diagram

There are several types of protections:

- I²C related protections.
- OTC related protections (via polling on I/O pins or via algorithms).
- Hardware protection

All protections are explained below.

5.7.2 I²C Related Protections

In normal operation, some registers of the I²C controlled ICs are refreshed every 200 ms. During this sequence, the I²C buses and the I²C ICs are checked.

An I²C protection will take place if the SDA and SCL lines are short-circuited to ground, or to each other. An I²C error will also occur, if the power supply of the IC is missing.

DC/DC protection: When a 3V3 supply is short-circuited, the DC/DC converter switches “off” and goes in protection. The FBX, EPLD IC, and 3D comb IC have no supply voltage and give no acknowledge. In this case, the TV should go into protection. An error code is written in the NVM: DC/DC error.

FBX protection: the FBX protection is not available any more. It is replaced by the DC/DC protection.

5.7.3 OTC Related Protections

If a protection is detected at an OTC input, the OTC will start to scan all protection inputs every 200 ms for 5 times. If the protection on one of the inputs is still active after 1 s, the microprocessor will put the TV in the protection mode. Before the scanning is started, a so-called "ESD refresh" is carried out. This is done, because the interrupt on one of the inputs is possibly caused either by a flash or by ESD. As a flash or ESD can influence IC settings, the HIP, MSP, 3D Comb and wireless module (not used in this set) are initialised again, to ensure the normal picture and sound conditions of the TV.

8 V and 5 V protections: The microprocessor senses the presence of the 8 V and 5 V (via the "+5V_CON" and "+8V_CON" lines). If one (or both) of these voltages is (are) not present, an error code is stored in the error buffer of the NVM, and the TV is put in the protection mode.

Audio Supply protection: The OTC senses if the audio module is in protection via IRQ-DIGITAL (pin 98 of OTC). If this is the case, the OTC puts the TV in protection.

5.7.4 Hardware Protection

Short-circuiting the 3V3 supply from the DC/DC converter will shut down the DC/DC converter. The absence of the 3V3 supply line is also sensed via I²C (see description Audio Supply protection above), this is useful if there is something wrong in the detection circuit of the DC/DC converter.

Audio DC Protection: This protection occurs when there is a DC voltage on the speakers. In that case, the Main Supply is switched "off". The Stand-by Supply is still working. For the Samsung SDI V4 displays, all internal supplies (except the 5V2), are switched "off" and the LED on the Samsung SDI V4 display (on PSU Alarm board) blinks 11 times., which means there is an overvoltage protection.

Repair tip: If there is an audio DC protection (DC voltage on your speakers), you will probably see error 18 blink. To be sure this is an audio DC protection, disconnect the cable between the SSB and the audio PWB and also the cable between the Main Supply and the Audio PWB. If the TV starts up, it is very likely that there is DC on the speakers. Check, and replace if necessary, the audio amplifiers.

Note: It is also possible that you have an Audio DC Protection because of an interruption in one or both speakers (the DC voltage that is still on the circuit can not disappear through the speakers).

5.8 Repair tips

5.8.1 Power Supply Unit (for Fujitsu - FHP - plasma displays)

Below a troubleshoot sequence for the **FHP** power supply is given (so this is **not** valid for the **SDI** power supply, this is explained further on).

Stand-by Supply

- 400V present?
- +9V_STDBY, +5V_STDBY, and 25V_HOT present?

Preconditioner

- Relay 1450 and 1440 "on" = switch "on" and supply "on" (LATCH= "H" and STANDBY= "L").
- 400V or rectified mains present on item 2616?
- 40V present on item 2664?
- 15V present on item 2662?

LLC Supply

- 25V_HOT (from Stand-by supply) present?

- 25V_HOT_SW (from Preconditioner) present?
- 17V on pin 15 of item 7001 present?
- Vcego= "H" and LATCH= "H"?
- Vrs present? (Vrs=Vs/67).
- Remark: Vs_unswitched = 65V when switch 7050 is open.

Va Supply

- Vs_unswitched present?
- 30V on item 3133 present?
- Vsa_control= "L" (Vsago= "H" and Vs_lowlim= "H")
- Vra present? (Vra=Va/48).

Vcc Supply

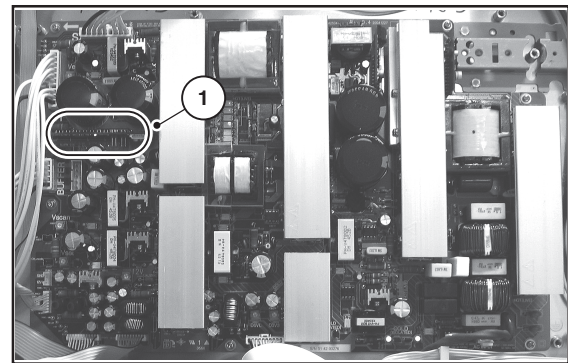
- Vs_switched present?
- Vccgo= "H"? (Vcego= "H").

Vs (switched)

- 95V present on cathode of item 6054?
- POK= "H" and Vsa_control= "L"? (POK= "H" when Vs, Va, Vcc, 12V, and 8V6 are above their lower limit)

5.8.2 Power Supply Unit (for Samsung - SDI - plasma displays)

This PSU is for Service a "black box". When defective (this can be traced via error-codes in the error buffer, or by strange phenomena), a new panel must be ordered and after receipt, the defective panel must be send for repair.



F_15460_079.eps
140405

Figure 5-8 SDI PSU Alarm board

A simple troubleshoot method for the SDI PSU is given below. When the TV is in protection check the LED on the PSU Alarm board (see (1) in figure "SDI PSU Alarm board"). In normal working mode, this LED is "on". However, if this LED is blinking, the PSU is in protection. See table:

Nr. of blinks	Fault Description	Remark
1	V _A block problem	Display voltages
2	12V block	
3	D5VL	Display voltage
4	D3V3	Display voltage
5	V _S	Display voltage
6	V _{CC} /V _G	Display voltage
7	V _{SET}	Display voltage
8	V _E	Display voltage
9	Thermal protection	
10	PFC_OK	Display voltage driving signal
11	OVP	Overvoltage protection OR DC-prot
12	Time_Over	A control signal to the PSU is missing after a certain time period
13	V _{SCAN}	Display voltage

5.8.3 3V3 Supply (DC/DC converter on the SSB)

As mentioned above, the DC/DC converter is switched "off" when something goes wrong (detection of a missing 3V3 supply at one of the devices supplied by the 3V3). Because of

this, the TV goes to protection (I²C protection). Error code "55" is logged.

For further diagnoses, you need to overrule the I²C protection: put the TV in Service Default Mode by means of the solder pads on the SSB (see figure "Service pads").

The DC/DC converter is still not working because it is switched "off" by the 3V3_FAULT line (schematic B12). Now you have some possibilities:

1. First, measure the impedance over diode 6U06. In normal conditions, you should measure approximately 120 ohm (if possible, verify this with another set). If the impedance is much too low, do not try to start up the converter as mentioned below. Remind that if FET 7U03 is short-circuited, this will also influence your measurement.
2. Desolder coils 5U05 and 5U06, connect an external 3V3 supply at capacitor 2U23 (current limitation to 500 mA) and a second external 3V3 supply at capacitor 2U31 (current limitation to 800 mA). The normal working current of the 3V3_SIM line is approximately 400 mA and the normal working current for the 3V3_DCDCFBX line is approximately 700 mA. Therefore, if one of the currents exceeds their nominal value you can determine in which circuit the overload is situated. If the TV would start up and you have normal picture, there is probably no overload but a problem in the detection circuits.
3. If you do not have two external power supplies, you can do the following: Desolder coils 5U02, 5U03, and 5U04 (you

must desolder all three, otherwise the circuit could be damaged), connect an external power supply of 3V3 at the cathode of diode 6U06. Make sure to limit the current of this external supply to approximately 1200 mA. If the supplied current exceeds 1100 mA (approximately normal working current) you can conclude that one of the devices supplied by 3V3 is short-circuited.

4. Another possibility is to force the converter to start up by short-circuiting (and keep short-circuited) resistor 3U25 (B12).

Caution: Be aware that this can damage the TV. Even if you measure approximately 120 ohm over diode 6U06, there can still be something wrong in the converter itself. By short-circuiting resistor 3U25, the internal protection of the converter is disabled.

5.8.4 Protections

Activating SDM via the "service pads" will overrule the processor-controlled protections, but not the hardware protections. This means, that the A/D-input protections (5 and 8 V) and the I²C "not-acknowledging" info of FBX + EPLD + 3D Comb and of the tuner are overruled.

Caution: When doing this, the service technician must know what he is doing, as it could lead to damaging the TV.

5.8.5 Repair tip table

Table 5-4 Repair tips

Phenomenon	Possible Cause	Repair tip
"F" in right corner of the screen and set is not reacting on remote control. The local keyboard is functioning.	TV is in factory mode.	Press MENU button on local keyboard for at least 3 seconds. Set will leave factory mode and function normally again.
No picture, LED blinking at 3 Hz.	Set is in protection due to various causes. For error codes see error-code list.	You have no picture, so: - Read the error buffer via ComPair (error buffer is accessible when set is in protection, ComPair-file will guide you to this). - Read the blinking LED information via standard remote command <mute>06250x<ok>. - Or you read the error code sequence via standard remote command <mute>062500<ok>. When you have found the error, check the circuitry related to the supply voltage and I ² C-communication or the circuitry that triggers the protection.
No picture, LED blinking with code 6-6-6 or 18-18-18.	No communication on slow I ² C- or fast I ² C-bus.	As processor cannot communicate with one of the 2 buses, the Stand-by-LED spontaneously starts blinking 6-6-6-etc. or 18-18-18-etc... If in the error buffer somewhere is an error 6 or 18, these will have the highest priority starting the mentioned blinking. Measure, dependent of the error on the I ² C-bus, which device is loading the bus (use I ² C-overview).
No picture, LED blinking with code 1-1-1.	No communication on NVM-I ² C bus to the uP.	As the uP cannot communicate with the NVM I ² C bus, it spontaneously starts blinking 1-1-1. Note: when there is no access to the NVM, a lot of picture setting can go wrong.
No RC-reception. Blue LED does not echo RC-commands.	uP circuitry or RC-receiver is defective.	In case the TV does react on a local keyboard operation, you must check the RC-receiver circuitry (diagram "J").
Picture is not synchronised.	The sync is derived in the HIP.	Check crystals in the HIP circuit on bad contacts.
Picture is distorted.	Check video-path in Service Default Mode.	Investigate whether there is an error code present in the error buffer. In case there is one, check the I ² C-bus and/or supply lines (see overview supply lines). Measure and check signal path Tuner-HIP-FBX-EPLD.
Picture with horizontal stripes.	Pixel Plus processing is malfunctioning	Check functionality on circuitry (B3a, B3b, B3c and B3d) of PICNIC, FEM, EAGLE, COLUMBUS and/or field memories. Tip: the whole Pixel Plus chipset can be diagnosed via ComPair.
No NextView (EPG).	IC7012 defective or not powered.	Check circuitry around IC7012 on diagram "B5a".
No Teletext.	IC7007 defective or not powered.	Check circuitry around IC7007 on diagram "B5a".
Problems caused by EPG (Electronic Program Guide). The TV set "hangs".	Problems with NexTV EPG broadcasts.	To switch from EPG 2C3 to Teletext guide, press for 4 seconds, simultaneously the MENU button on the TV and digit 0 on the remote. The option settings for NexTV type and FlashRAM will not change.
NexTV EPG is not functioning only Teletext guide.	EPG version 2C3 is switched "off" during production.	To switch from Teletext guide to EPG 2C3, press for 4 seconds, simultaneously the MENU button on the TV and digit 1 on the remote. The option settings for NexTV type and Flashram will not change.
Various symptoms, due to missing local supply voltage.	An interrupted fuse, NFR-resistor or connection.	When no symptom or error code leads you to a specific circuitry, use the supply lines overview (see supply lines overview), for a quick scan of all supply lines.
No sound at the speakers but sound at monitor out.	Possible problem with the class D amplifier	Check circuitry around IC7700 on diagram "SA3" (LCD) or "C" (PDP).
No sound at the speakers but sound at monitor out.	Sound enable from OTC is HIGH, speakers are muted	Check pin 95 of OTC on diagram "B5a".
No sound at the speakers not at monitor out, but sound at SCART 1 output.	POR line is low, anti plop circuit mutes the sound	Check pin 8 on connector 1739 on audio panel. Diagram "C" for PDP sets and diagram "SA3" for LCD sets
No sound from any output (except headphone)	Reset audio is high or MSP is not properly reset	Check pin 16 of MSP (diagram "B6a") and circuitry around MSP.
No sound from the tuner but sound from any other input.	Problem with the delay line (PDP sets only)	Check circuitry on diagram "B6d".

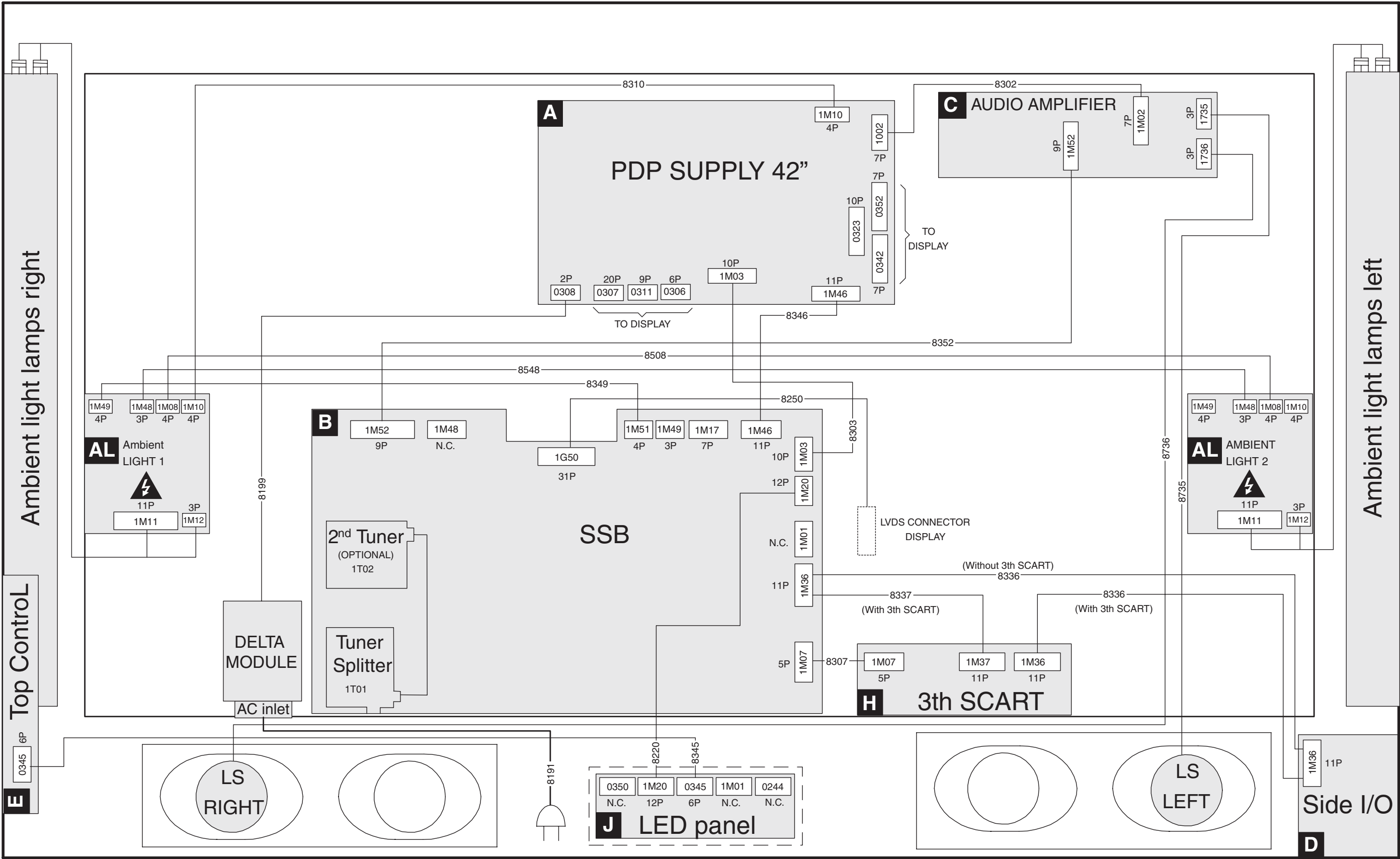
5.9 Software Downloading

In this chassis, you can **upgrade** the main software via ComPair without removing the back cover of the TV (it is possible that early production sets don't have a hole in the back plate, in this case you have to remove the back plate). The switch, which is needed for the software downloading procedure, can be reached through a gap in the back cover or the SSB shielding. The switch can be operated with a toothpick or something like that. Make sure that you do not damage the PWB with sharp objects. You can find more information on how this procedure works in the ComPair file. It is possible that not all sets are equipped with the hardware, needed to make software upgrading possible. To speed up the programming process the firmware of the ComPair interface can be upgraded. See paragraph "How To Order" for the order number.

6. Block Diagrams, Testpoint Overviews, and Waveforms

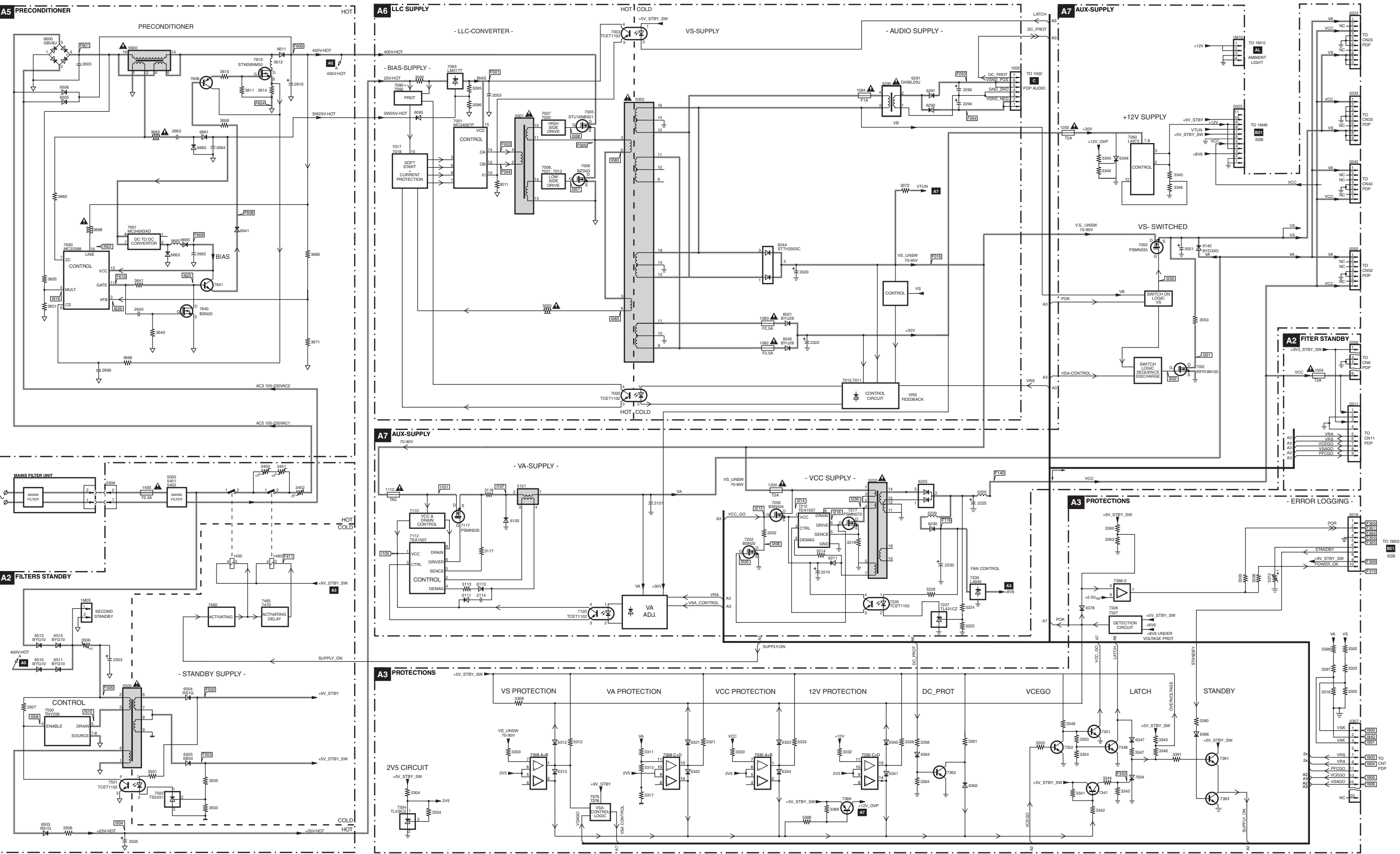
Wiring Diagram 42 Inch FHP Step

WIRING 42" FHP

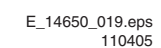


Block Diagram Supply 42 Inch FHP

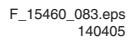
SUPPLY 42" FHP



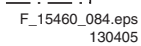
VIDEO



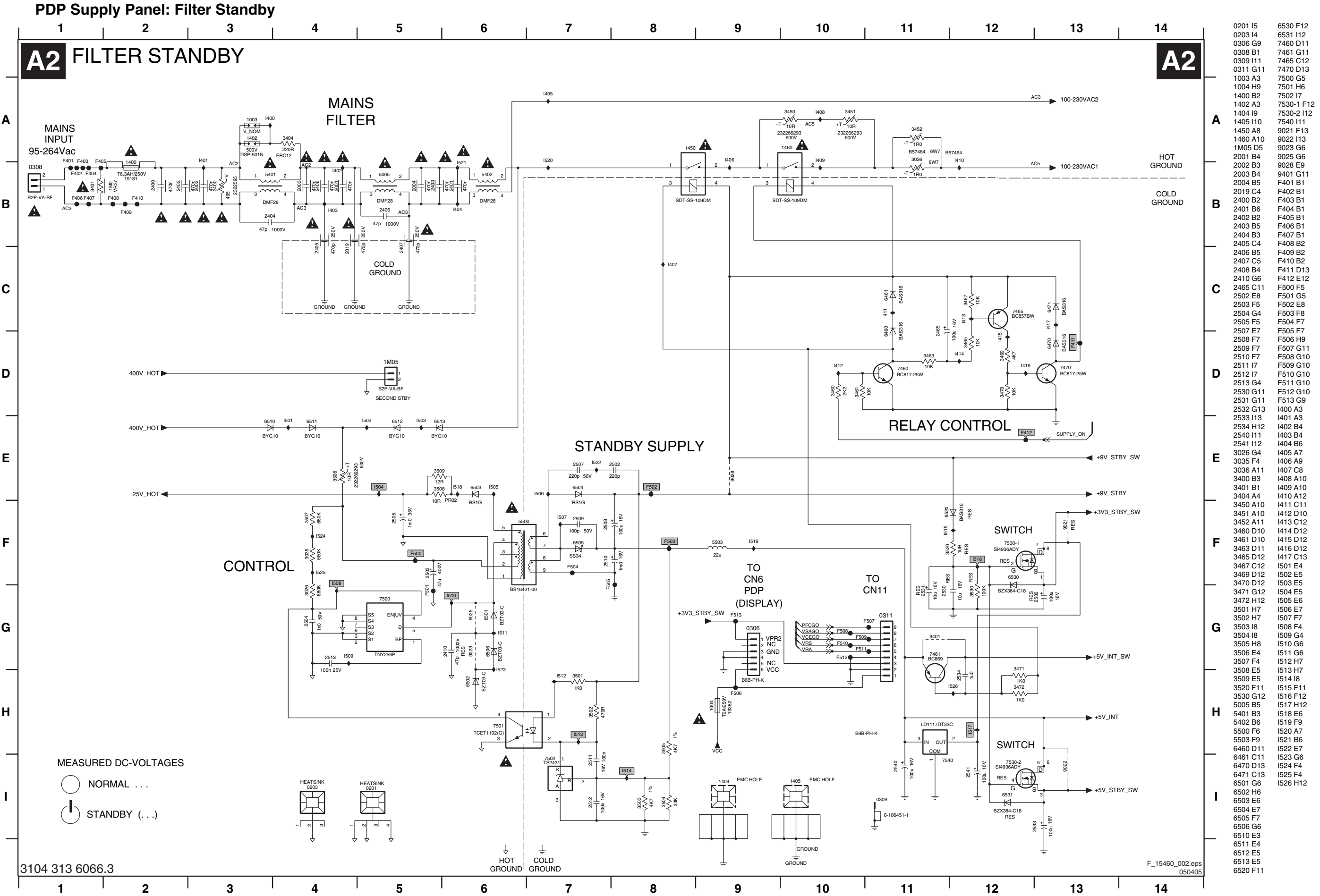
SUPPLY LINES OVERVIEW FHP 42'



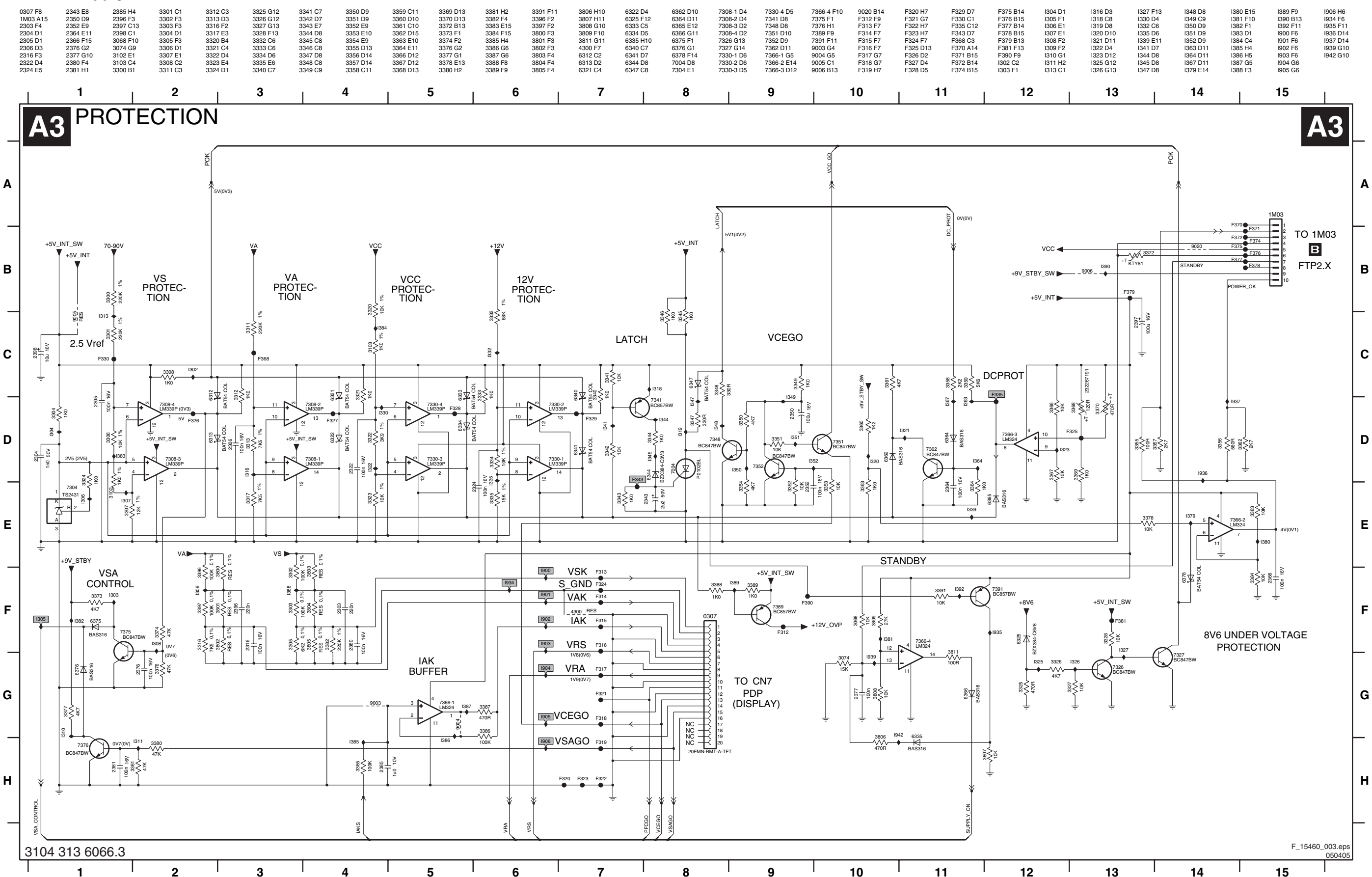
SUPPLY LINES OVERVIEW SDI 42" / 50"



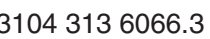
7. Circuit Diagrams and PWB Layouts



PDP Supply Panel: Protection



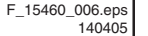
A5 PRECONDITIONER



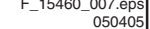
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2604 C2	3999 A10	I647 F3
2605 C3	5600 A5	I648 H12
2608 H8	5601 B8	I649 G6
2610 B7	5612 B7	I650 E3
2611 B8	5660 E10	I651 E3
2612 B5	6600 B2	I652 G5
2613 C6	6601 F3	I653 F5
2614 C6	6602 G6	I654 C5
2616 C9	6605 A3	I655 C7
2617 C9	6606 A2	I656 E8
2640 H8	6608 B6	I657 G12
2642 G11	6609 C7	I658 H12
2651 H3	6611 B8	I659 G12
2653 H5	6640 G11	I660 G12
2654 H1	6641 H10	I661 G12
2655 H3	6642 H11	I662 H12
2656 H2	6643 H9	I663 G1
2660 E10	6651 H5	I664 I6
2661 F8	6652 H4	I665 I7
2662 F11	6653 H5	I666 I6
2663 E6	6654 G1	I667 I7
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2673 G12	7602 F8	
2674 G12	7608 C6	
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3607 F3	F604 C10	
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3686 C7	I642 E10	

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A7 AUX SUPPLY



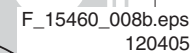
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2061	I2	3216	H7	I09	C2
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2112	I12	3218	I9	I11	C5
2113	I12	3219	I7	I12	D3
2114	E2	3220	I9	I13	D1
2117	D3	3224	H11	I14	E2
2118	A4	3225	H11	I15	D2
2121	E1	3226	G11	I16	D2
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2129	I23	3229	F12	I18	A4
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2133	E9	3261	A6	I21	D7
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2215	I6	5225	G11	I30	A9
2217	H8	5229	H10	I31	E7
2219	G9	5260	A55	I32	E9
2221	H7	5268	A10	I33	B9
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2266	H12	6213	H7	I62	C2
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3084	I1	7060	B11	I77	B11
3085	H1	7061	C1	I78	B11
3086	I11	7110	C2	I79	B11
3087	I11	7112	C2	I80	B11
3088	I11	7117	G3	I81	C11
3091	D9	7125	B5	I20	G3
3092	H1	7121	D7	I21	H3
3097	C1	7130	E8	I20	I3

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2606	A2	3081	B4	3308	G6	3619	B2	6086	D8	7092	B4
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2642	A2	3090	A3	3323	G7	3643	A2	6133	D6	7140	E7
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A horizontal number line with tick marks at each integer from 1 to 5. The numbers 1, 2, 3, 4, and 5 are written above their respective tick marks.

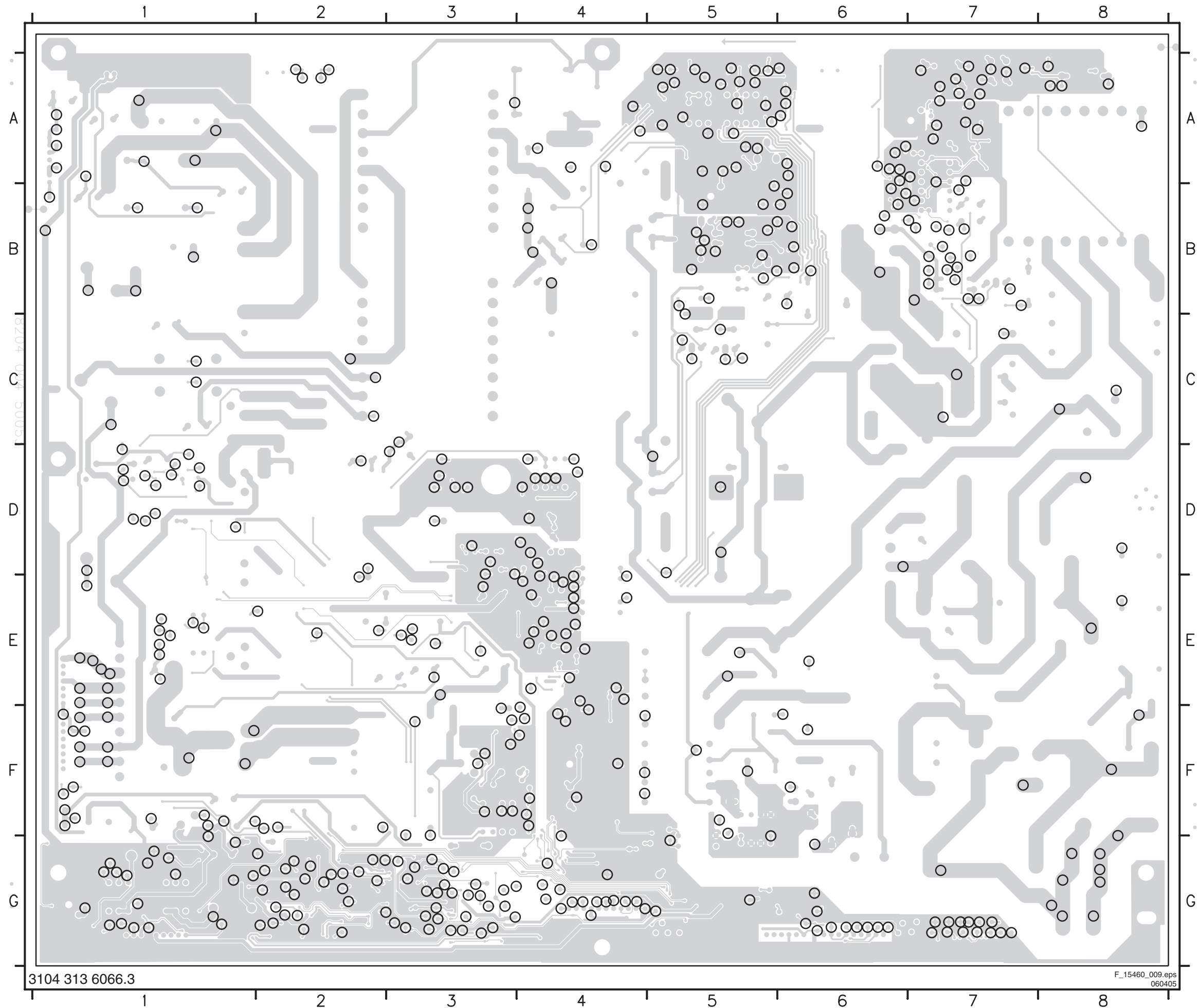


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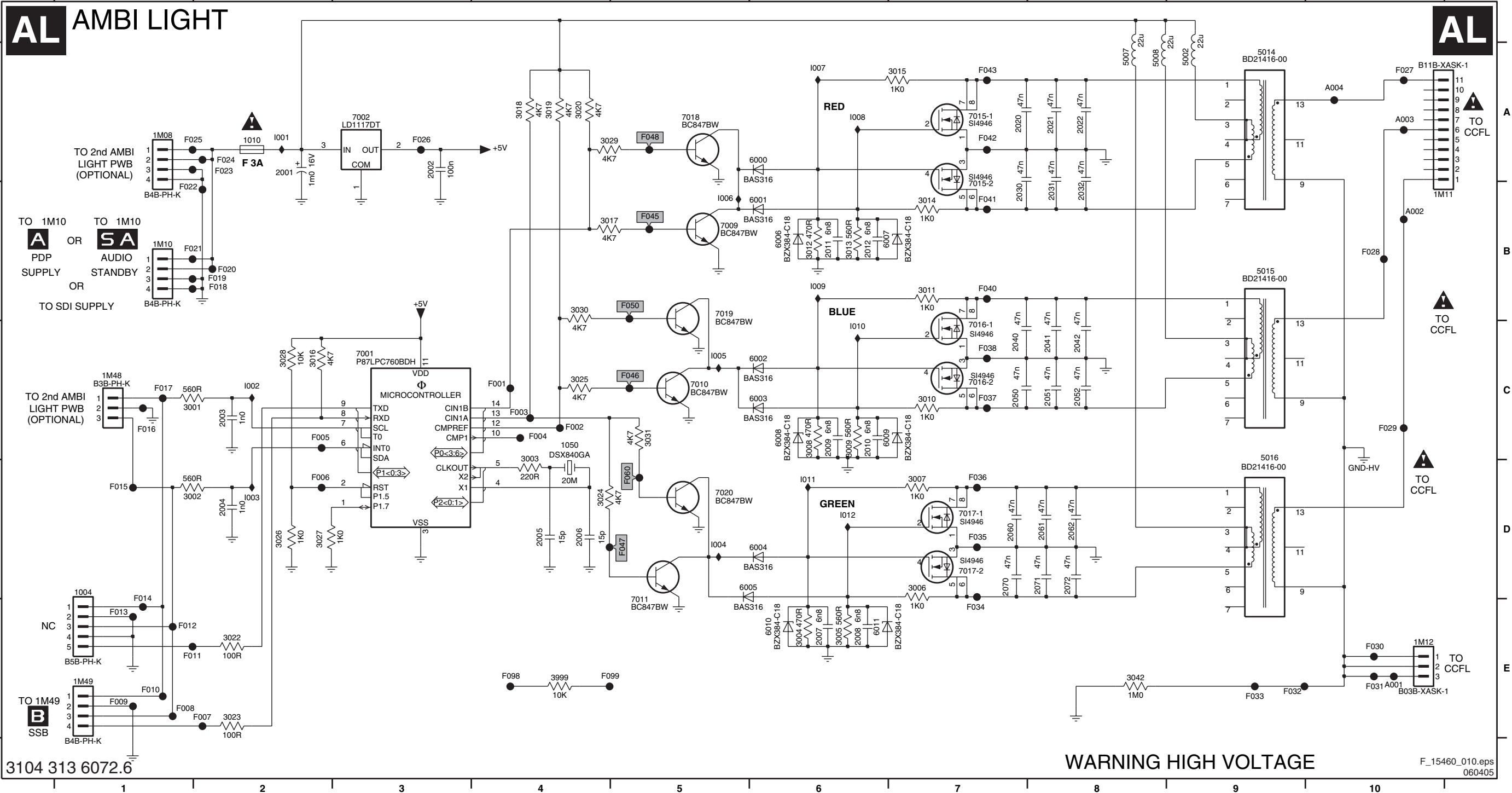
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Layout PDP Supply Panel (Bottom Side)



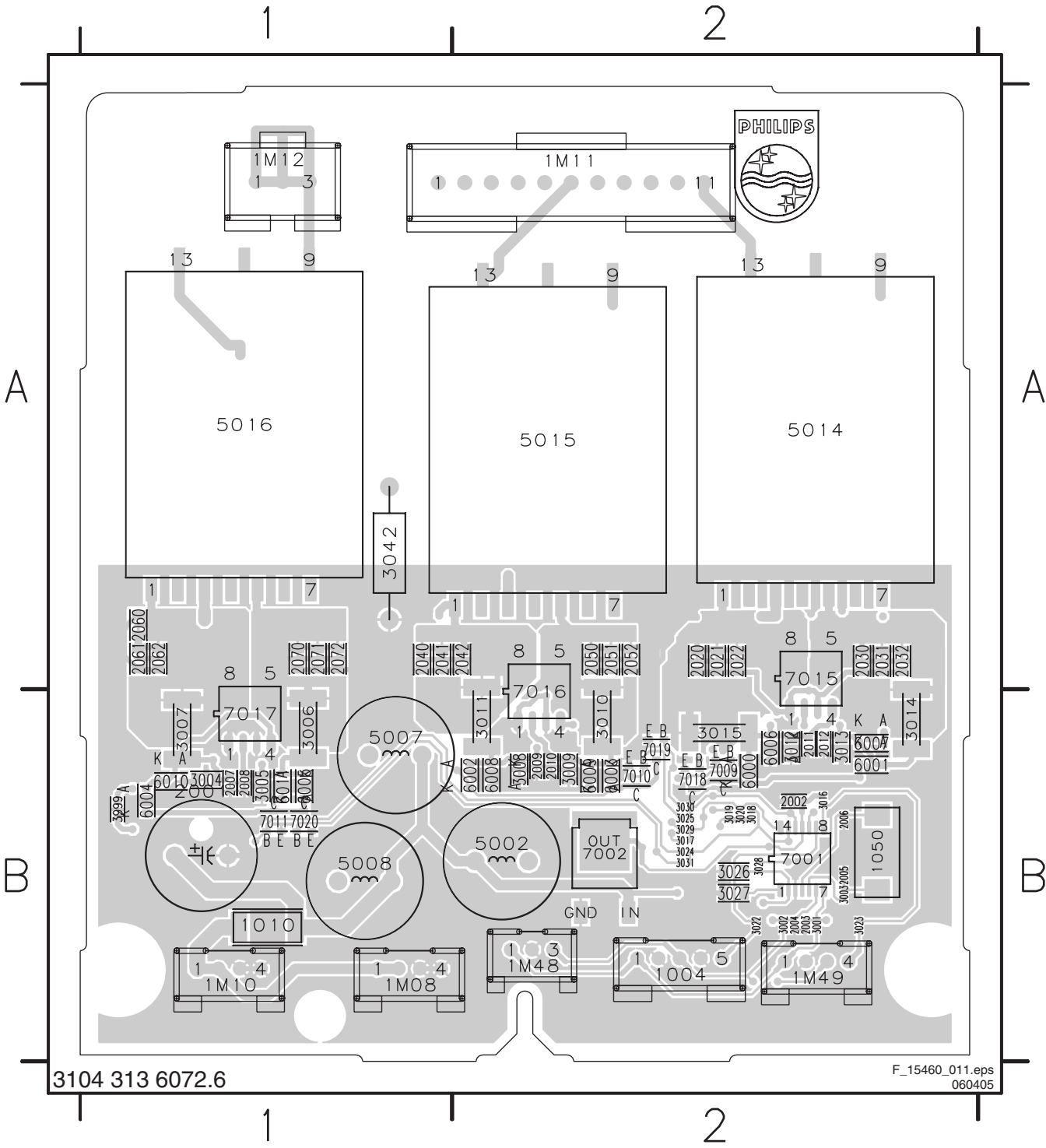
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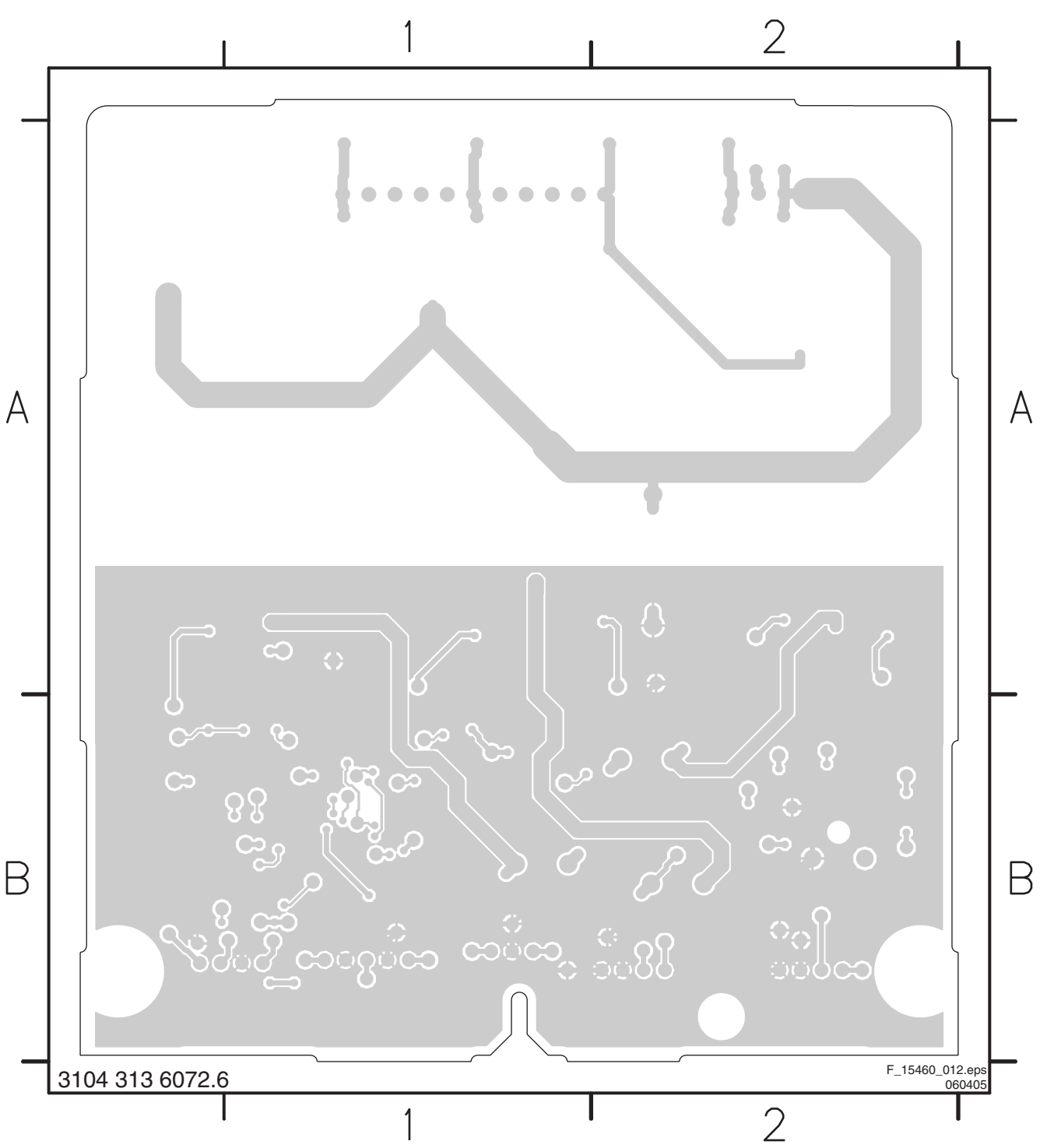


Layout Ambi Light (Top Side)

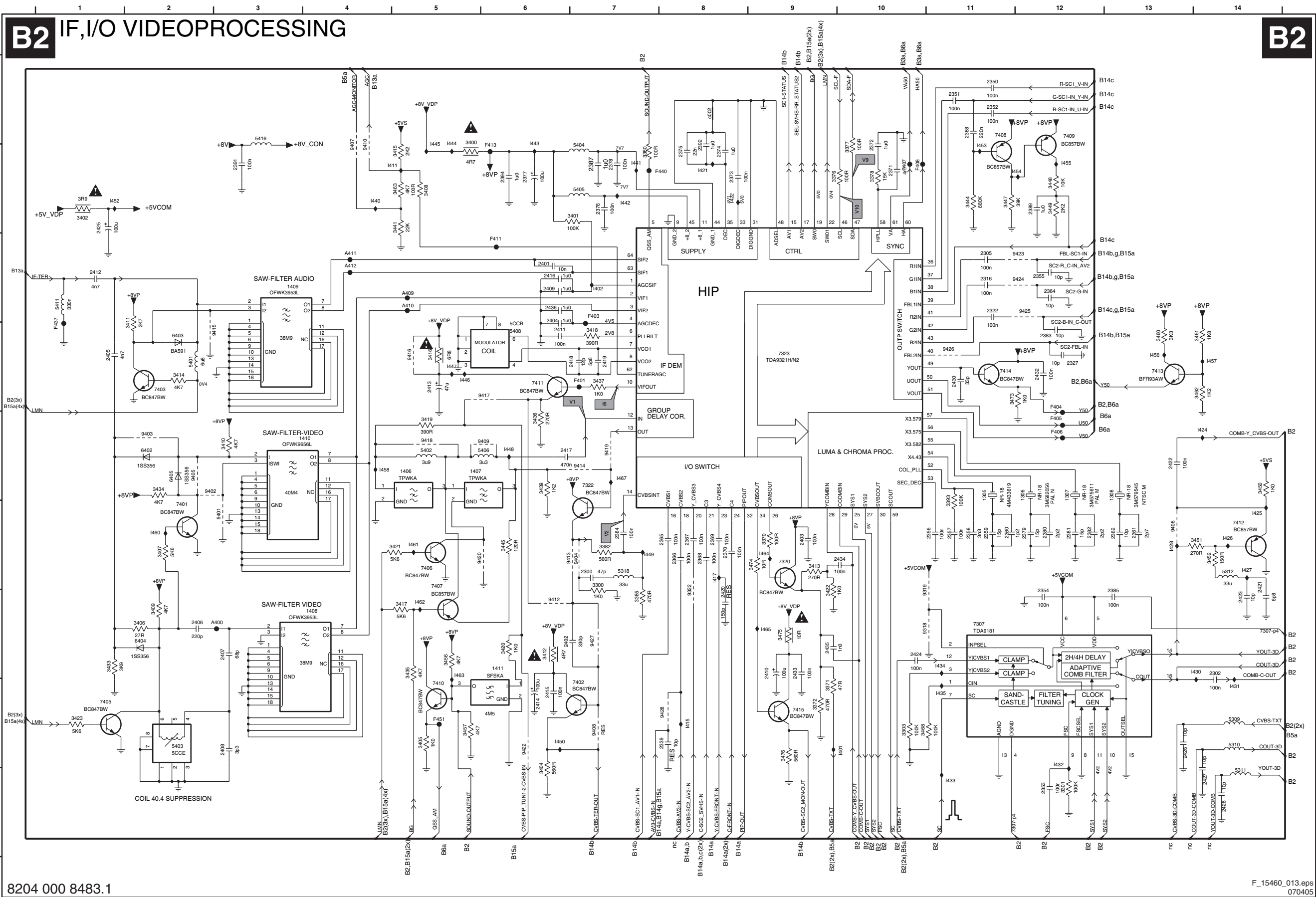
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Layout Ambi Light (Bottom Side)



SSB: IF, I/O Video Processing



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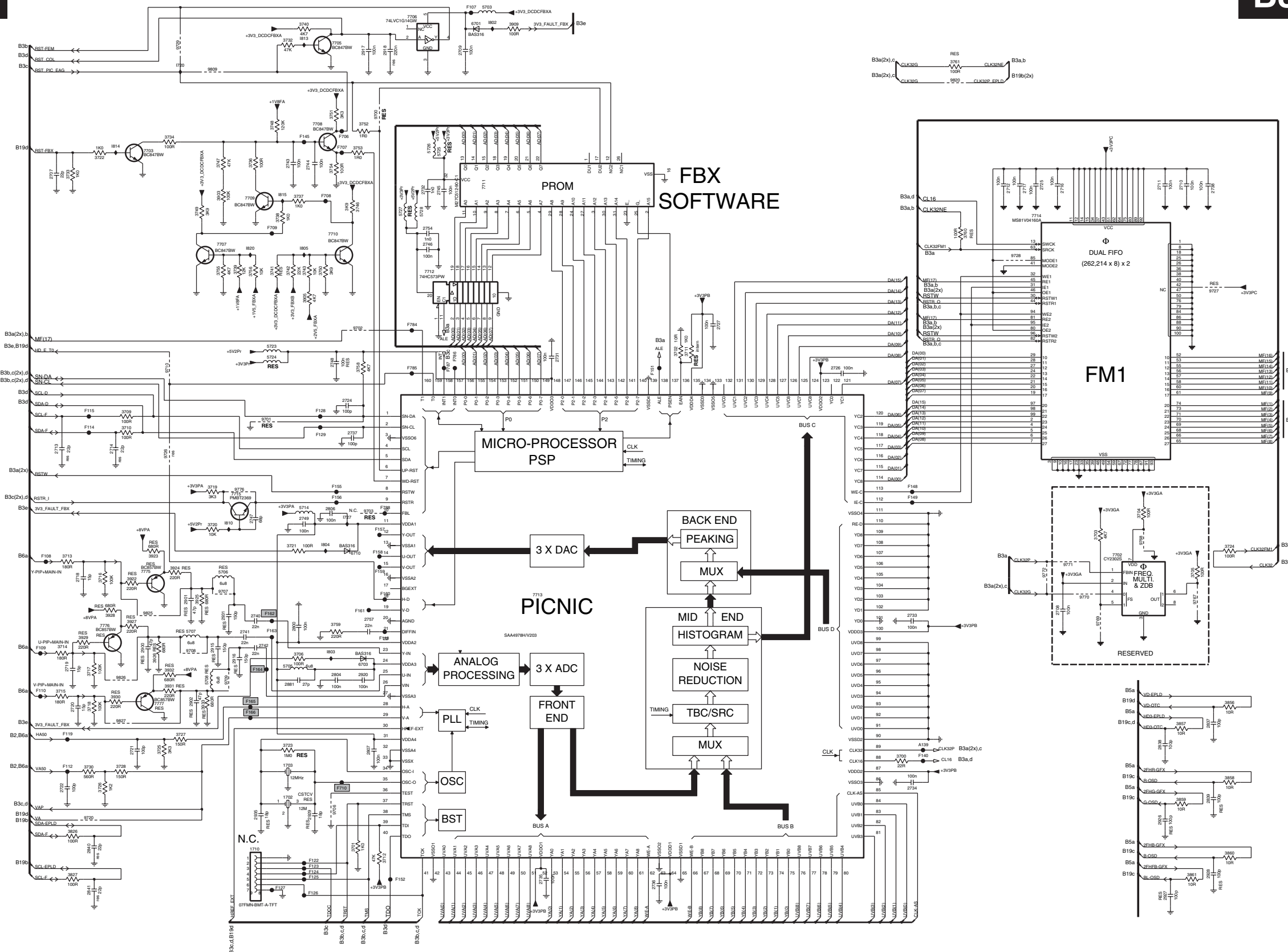
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SSB: PICNIC

B3A PICNIC

B3A



* SEE MAPPING I1 ON B3c

** SEE MAPPING G1 ON B3c

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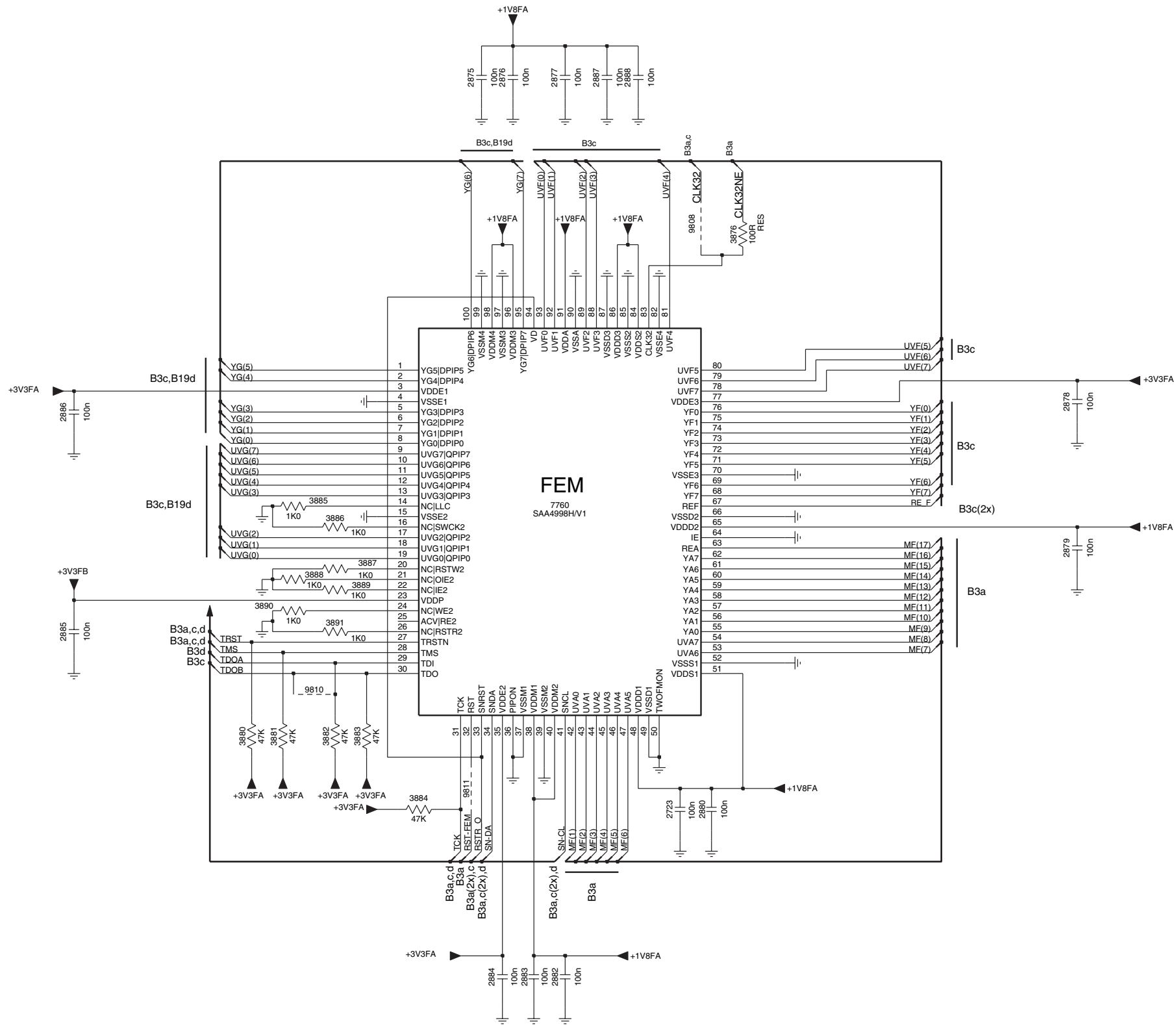
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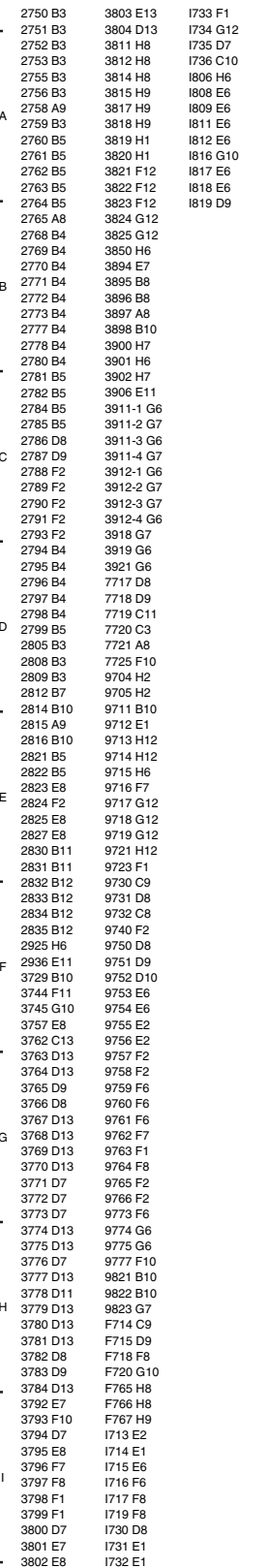
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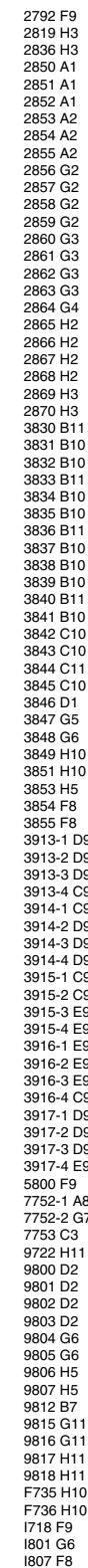


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- 2877 B6
- 2878 D9
- 2879 E9
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- 2882 H6
- 2883 H6
- 2884 H6
- 2885 F3
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- 2887 B6
- 2888 B6
- 3876 C7
- 3880 F4
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B3C | **EAGLE**



B3D COLUMBUS

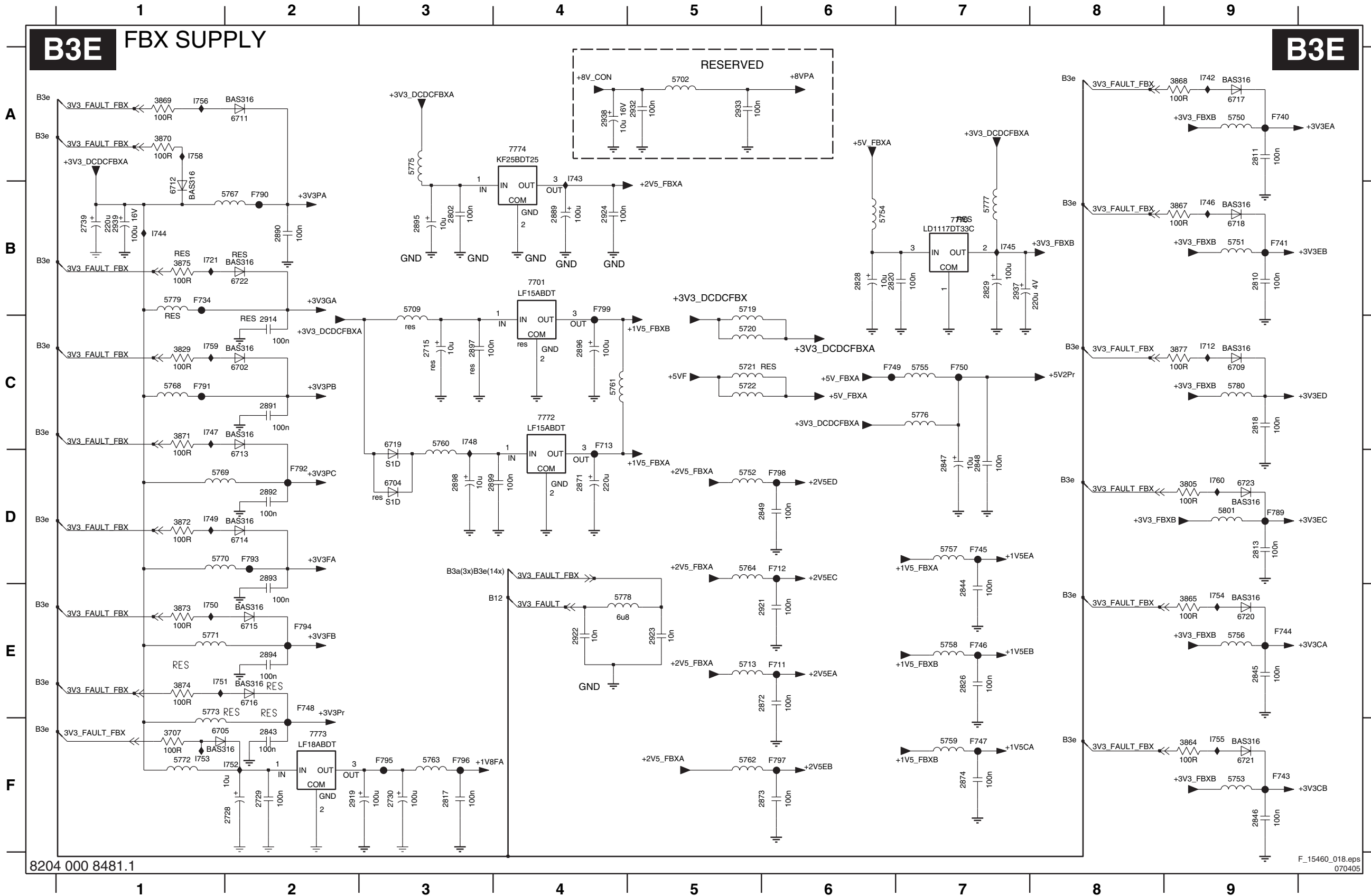


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B3E FBX SUPPLY

B3E



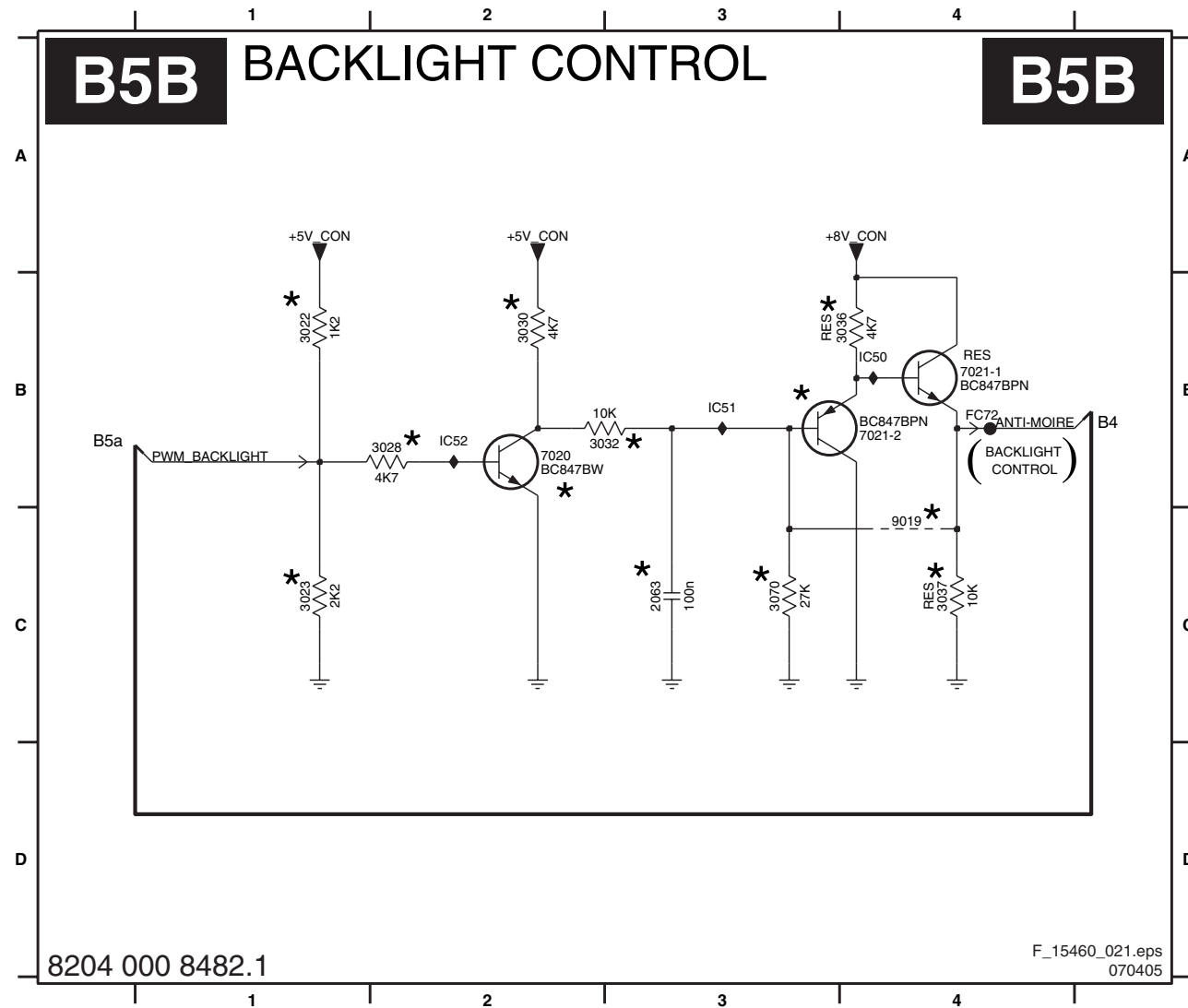
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2938 A4	F794 E2
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B5A OTC-FLASH



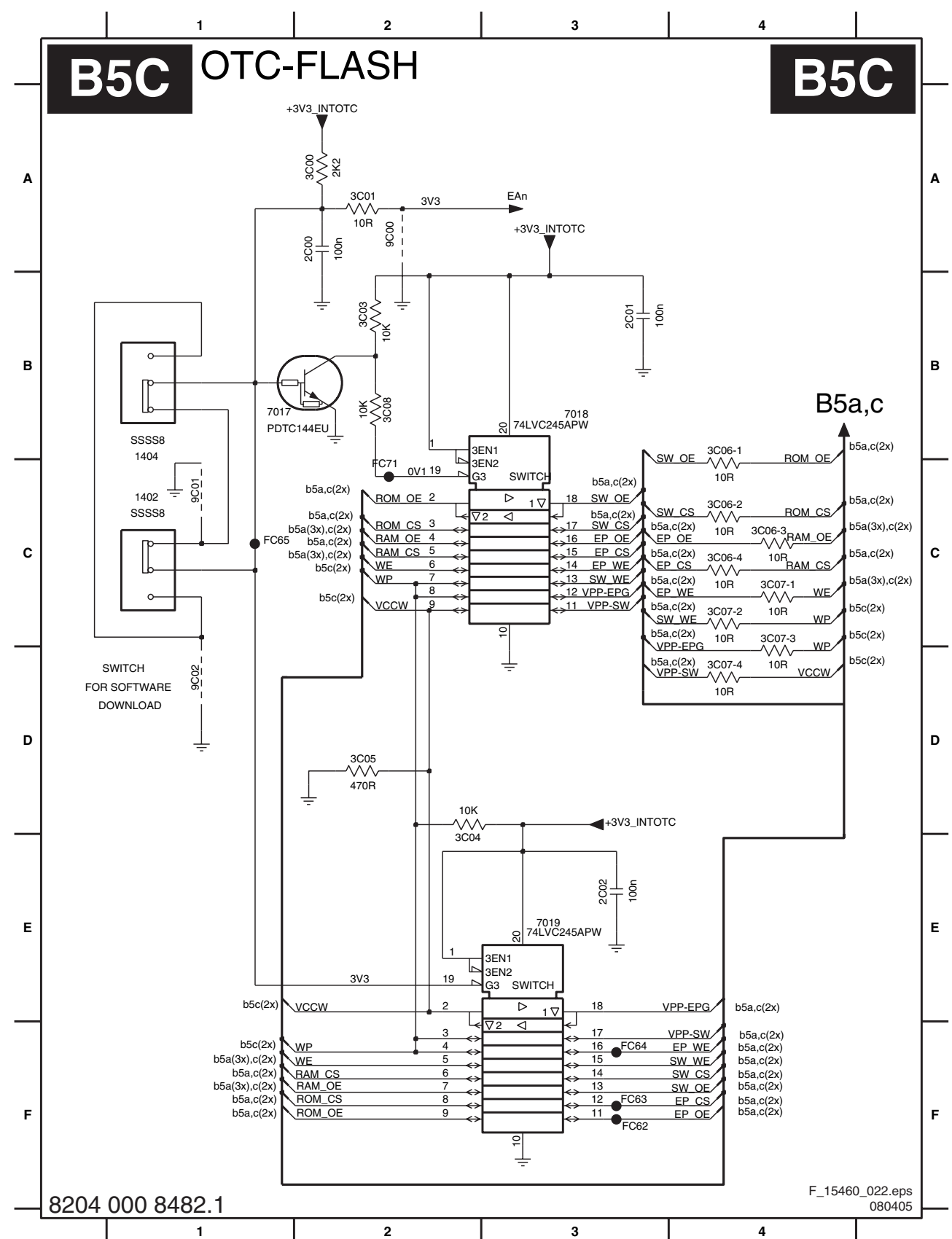
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	3012-1 I8	3067 H11	7014 G13	IC09 F1	
	3012-2 I8	3068 A2	7015 I2	IC11 G13	
	3012-3 I8	3069 E3	7016 J2	IC13 G11	
	3012-4 I8	3072-1 B13	7022 B1	IC14 G8	
	3013 F12	3072-2 B13	7023 A4	IC15 H8	
	3014 F12	3072-3 A13	9001 H2	IC17 H4	
I	3015 G11	3072-4 B13	9002 J2	IC18 H8	
	3016 G12	3073-1 C4	9003 G1	IC20 H7	
	3017 F13	3073-2 C4	9004 F1	IC21 H3	
	3018 A2	3073-3 C4	9005 A4	IC22 H4	
	3019 B2	3073-4 B4	9006 A3	IC23 I9	
	3020 A2	3074-1 F2	9007 F12	IC24 I9	
	3021 B2	3074-2 F4	9008 J10	IC26 I3	
	3024 D3	3074-3 F3	9009 J11	IC27 I9	
	3025 E1	3074-4 A3	9010 I11	IC28 I8	
	3028 E4	3075 C1	9011 I11	IC29 D8	
J	3027 E2	3075-1 D4	9012 I11	IC37 F4	
	3029-1 B11	3076-2 D3	9013 J11	IC38 J12	
	3029-2 B11	3076-3 D3	9014 C2	IC40 E3	
	3029-3 B11	3076-4 D4	9015 D2	IC41 C3	
	3029-4 B11	3077 D3	9016 C2	IC42 F12	

2063 C3	3023 C1	3030 B2	3036 B4	3070 C3	7021-1 B4	9019 C4	IC50 B4	IC52 B2
3022 B1	3028 B2	3032 B2	3037 C4	7020 B2	7021-2 B4	FC72 B4	IC51 B3	

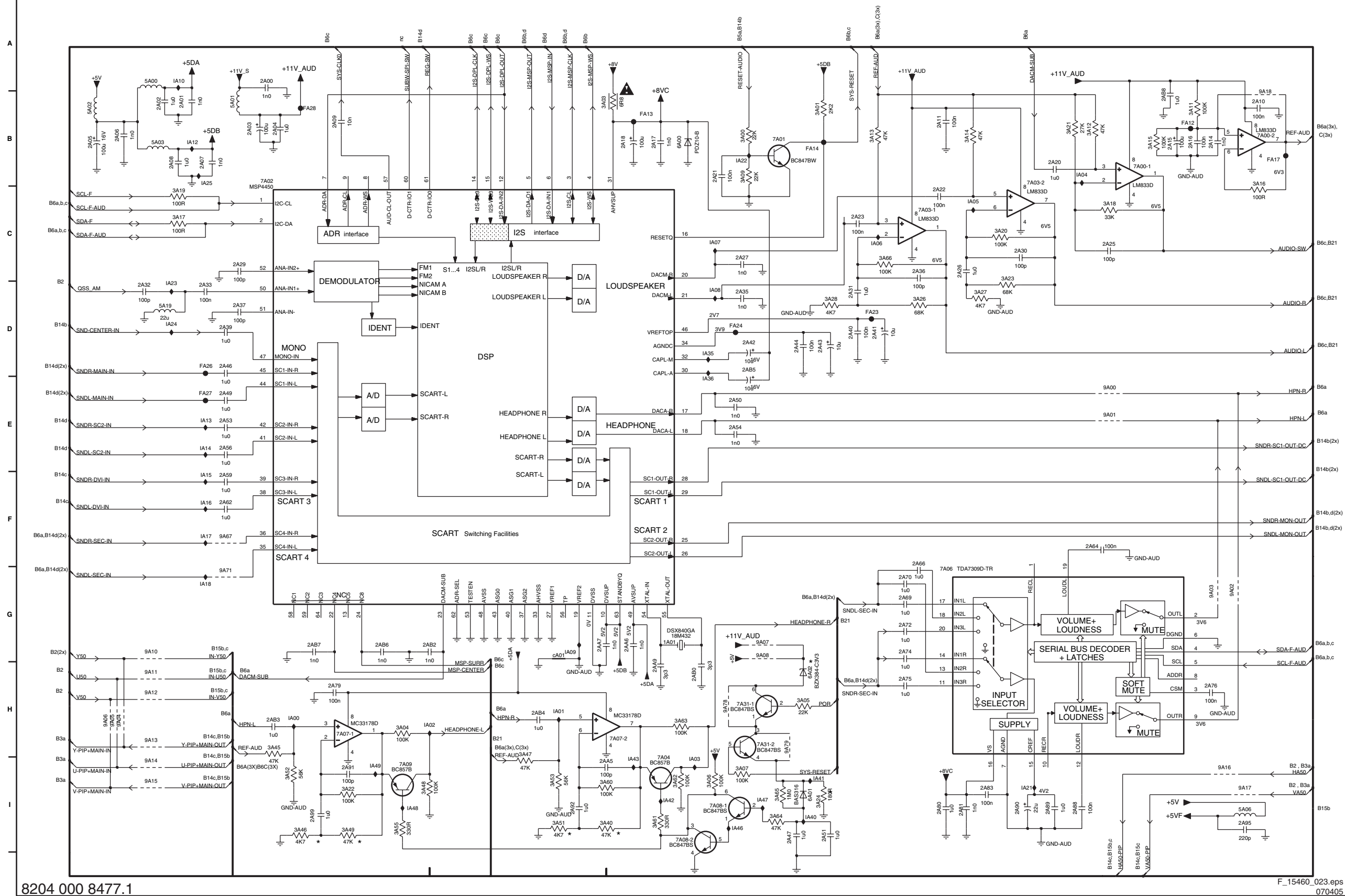


SSB: OTC-Flash

1402 C1	2C01 B3	3C01 A2	3C05 D2	3C06-3 C4	3C07-2 C4	3C08 B2	7019 E3	9C02 D1	FC64 F3
1404 B1	2C02 E3	3C03 B2	3C06-1 B4	3C06-4 C4	3C07-3 C4	7017 B1	9C00 A2	FC62 F3	FC65 C1
2C00 A2	3C00 A2	3C04 D2	3C06-2 C4	3C07-1 C4	3C07-4 D4	7018 B3	9C01 C1	FC63 F3	FC71 C2



B6A AUDIO DEMODULATOR



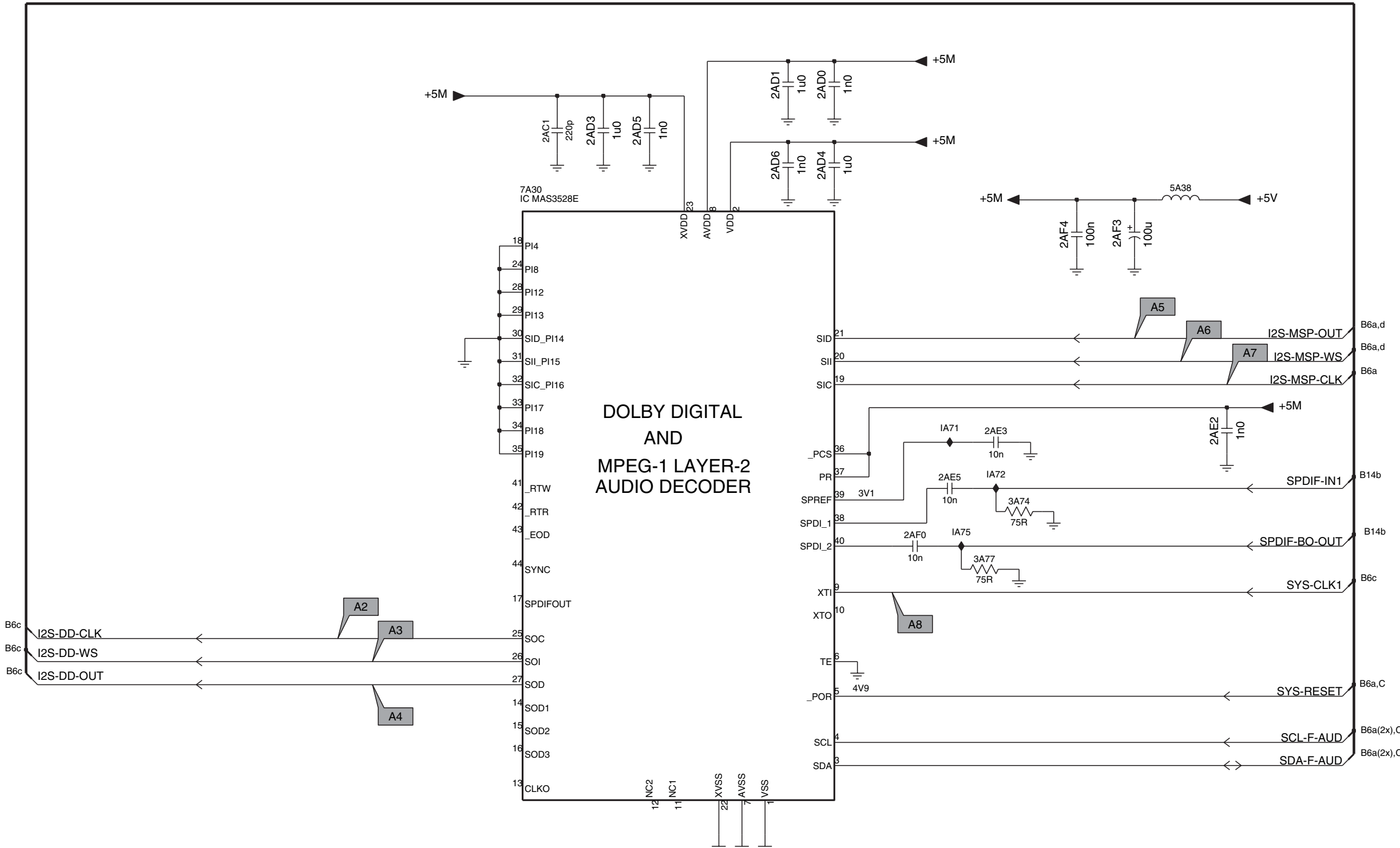
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SSB: Dolby Digital Decoder

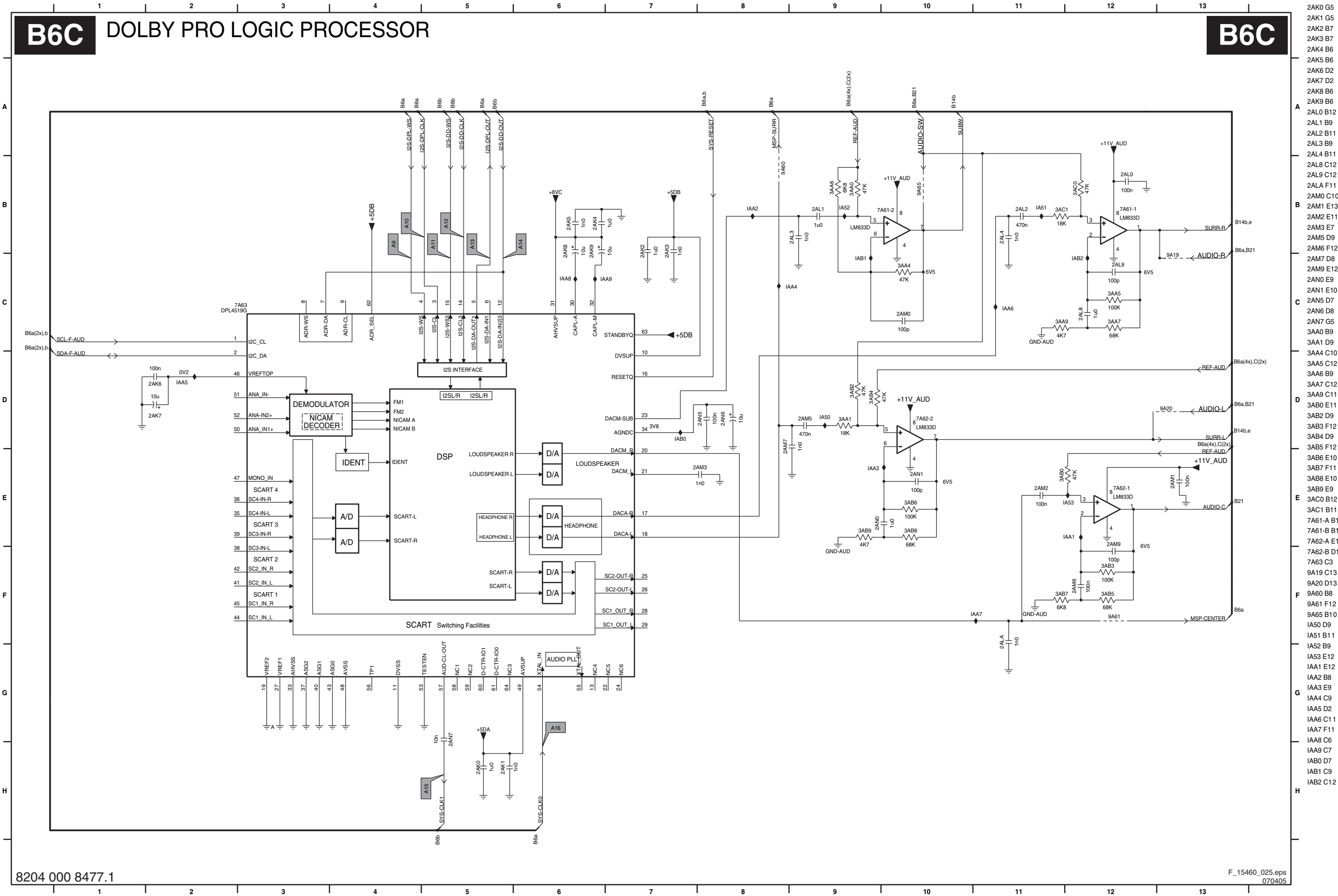
B6B DOLBY DIGITAL DECODER

B6B

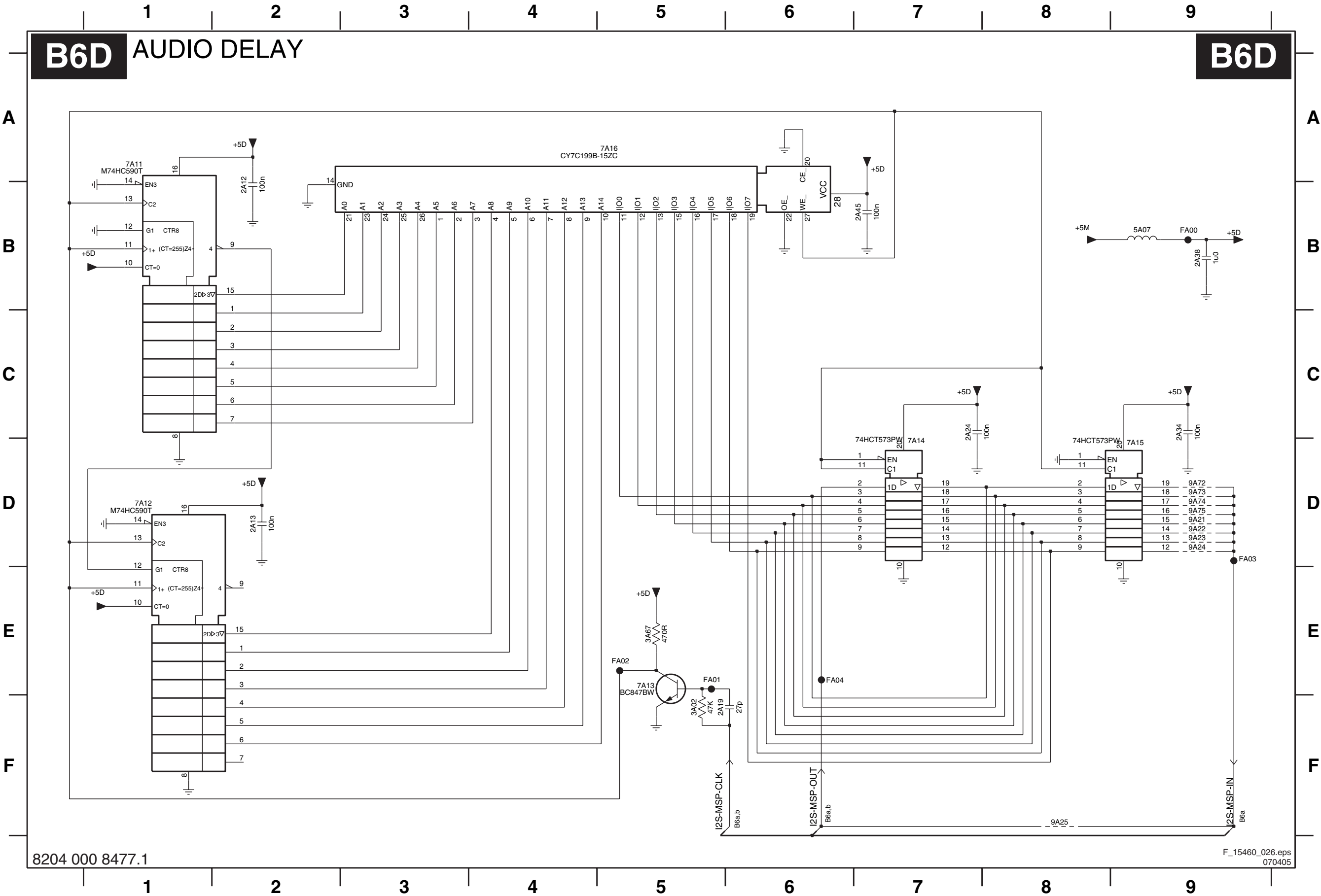
- 2AC1 B4
- 2AD0 B6
- 2AD1 B6
- 2AD3 B4
- 2AD4 B6
- 2AD5 B5
- 2AD6 B6
- 2AE2 D8
- 2AE3 D7
- 2AE5 D7
- 2AF0 E6
- 2AF3 C8
- 2AF4 C7
- 3A74 D7
- 3A77 E7
- 5A38 B8
- 7A30 B4
- IA71 D7
- IA72 D7
- IA75 D7



SSB: Dolby Pro Logic Processor



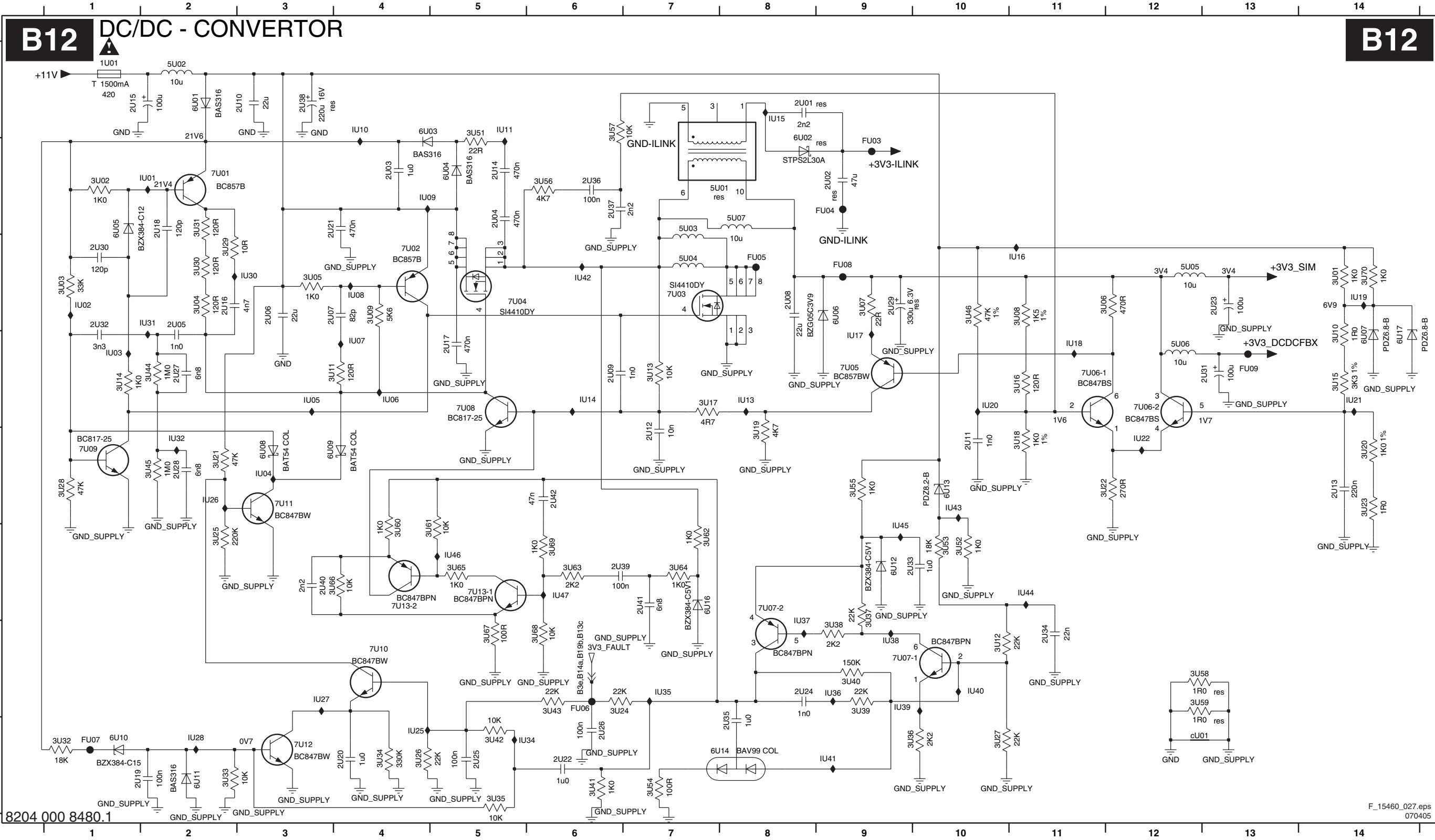
SSB: Audio Delay



- 2A12 B2
- 2A13 D2
- 2A19 F5
- 2A24 C7
- 2A34 C9
- 2A38 B9
- 2A45 B7
- 3A02 F5
- 3A67 E5
- 5A07 B9
- 7A11 A1
- 7A12 D1
- 7A13 E5
- 7A14 D7
- 7A15 D9
- 7A16 A5
- 9A21 D9
- 9A22 D9
- 9A23 D9
- 9A24 D9
- 9A25 F8
- 9A72 D9
- 9A73 D9
- 9A74 D9
- 9A75 D9
- FA00 B9
- FA01 E5
- FA02 E5
- FA03 D9
- FA04 E6

SSB: DC/DC Converter

1U01 A1	2U08 C8	2U16 C2	2U24 G8	2U32 C1	2U40 F3	3U06 C12	3U14 D1	3U22 E12	3U30 C2	3U38 G9	3U46 C10	3U58 G12	3U66 F4	5U04 C7	6U05 B1	6U13 E10	7U05 D9	7U11 E3	FU07 H1	IU06 D4	IU15 A8	IU25 H4	IU35 G7	IU43 E10
2U01 A8	2U09 D6	2U17 D5	2U25 H5	2U33 F10	2U41 F7	3U07 C9	3U15 D14	3U23 E14	3U31 B2	3U39 G9	3U51 A5	3U59 G12	3U67 G5	5U05 C12	6U06 C9	6U14 H8	7U06-A D12	7U12 H3	FU08 C9	IU07 D4	IU16 C11	IU26 E2	IU36 G9	IU44 F11
2U02 B9	2U10 A3	2U18 B2	2U26 H6	2U34 G11	2U42 E6	3U08 C11	3U16 D11	3U24 G6	3U32 H1	3U40 G9	3U52 F10	3U60 F4	3U68 G6	5U06 D12	6U07 D14	6U16 F7	7U06-B D12	7U13-1 F5	FU09 D13	IU08 C4	IU17 D9	IU27 G3	IU37 F8	IU45 F9
2U03 B4	2U11 E10	2U19 H1	2U27 D2	2U35 H8	2U43 C14	3U09 C4	3U17 D7	3U25 F2	3U33 H2	3U41 H6	3U53 F10	3U61 F5	3U69 F6	5U07 B8	6U08 E3	6U17 D14	7U07-1 G10	7U13-2 F4	IU01 B2	IU09 B4	IU18 D11	IU28 H2	IU38 G9	IU46 F5
2U04 B5	2U12 E7	2U20 H4	2U28 E2	2U36 B6	2U44 C1	3U10 D14	3U18 E11	3U26 H4	3U34 H4	3U42 H5	3U54 H7	3U62 F7	3U70 C14	6U01 A2	6U09 E3	7U01 B2	7U07-2 F8	FU03 B9	IU02 C1	IU10 A4	IU19 C14	IU30 C3	IU39 G9	IU47 F6
2U05 C2	2U13 E14	2U21 B3	2U29 C9	2U37 B6	2U45 C1	3U11 D4	3U19 E8	3U27 H10	3U35 H5	3U43 G6	3U55 E9	3U63 F6	5U01 B8	6U02 A8	6U10 H1	7U02 C4	7U08 D5	FU04 B9	IU03 D1	IU11 A5	IU20 D10	IU31 C2	IU40 G10	cU01 H12
2U06 C3	2U14 B5	2U22 H6	2U30 C1	2U38 A3	2U46 C2	3U12 G10	3U20 E14	3U28 E1	3U36 H10	3U44 D2	3U56 B6	3U64 F7	5U02 A2	6U03 A4	6U11 H2	7U03 C7	7U09 E1	FU05 C8	IU04 E3	IU13 D8	IU21 D14	IU32 E2	IU41 H9	
2U07 C3	2U15 A1	2U23 C13	2U31 D13	2U39 F6	2U47 C3	3U13 D7	3U21 E2	3U29 C2	3U37 F9	3U45 E2	3U57 A6	3U65 F5	5U03 B7	6U04 B5	6U12 F9	7U04 C5	7U10 G4	FU06 G6	IU05 D3	IU14 D6	IU22 E12	IU34 H6	IU42 C6	

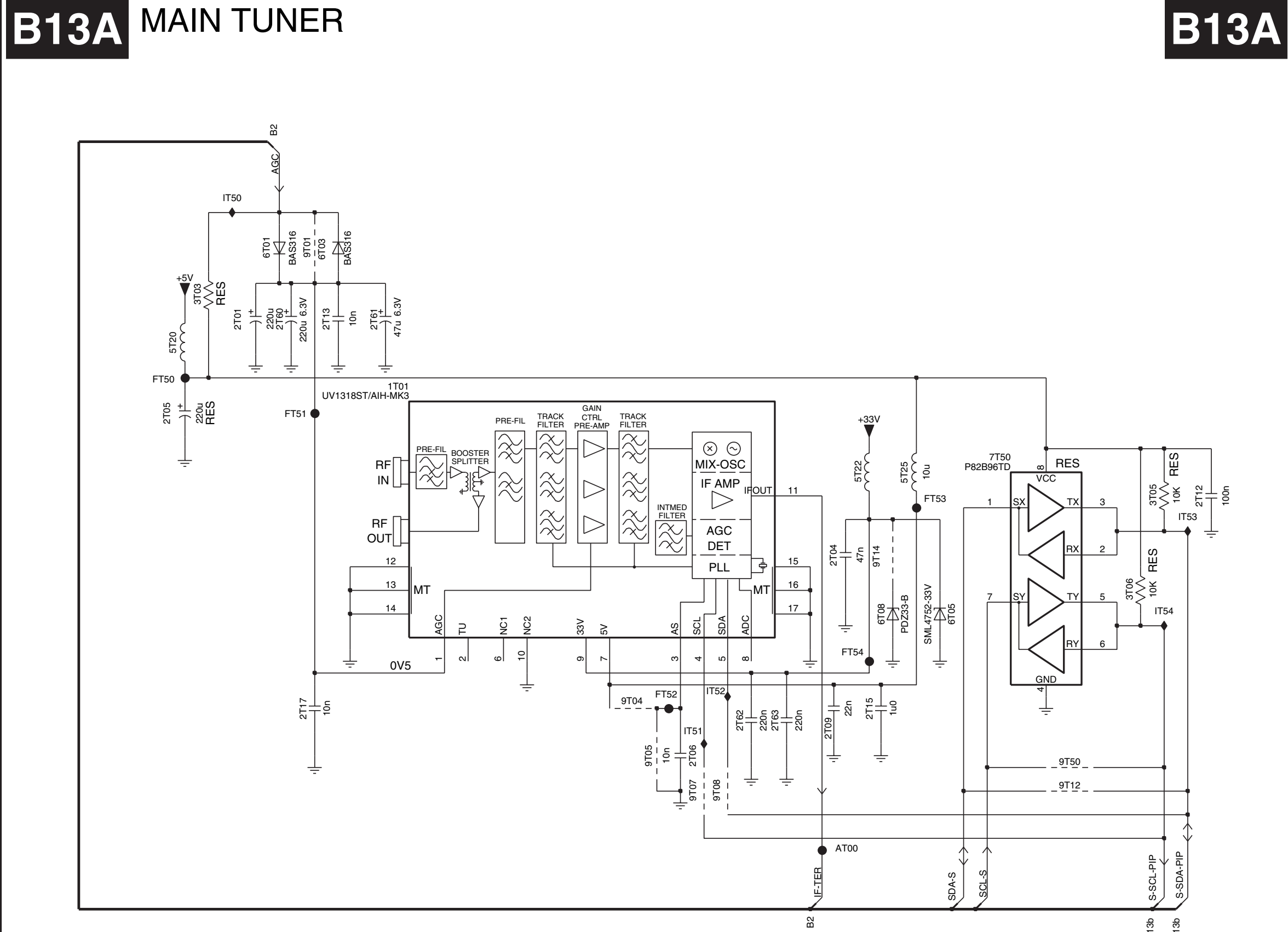


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SSB: Main Tuner

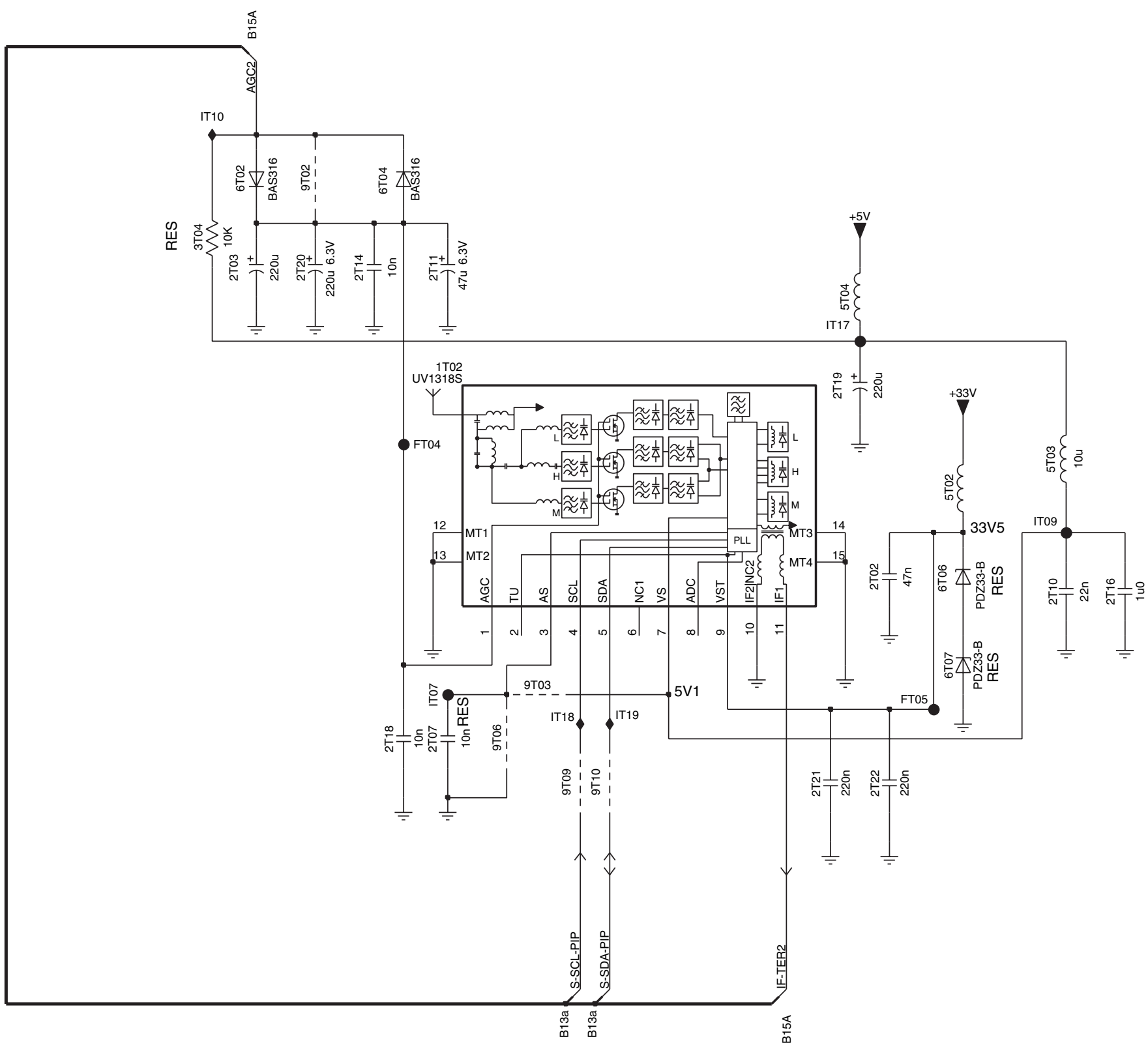
1T01 B3	2T05 C1	2T12 C7	2T17 D2	2T62 D5	3T05 C7	5T22 C5	6T03 B2	7T50 C6	9T05 E4	9T12 E7	AT00 E5	FT52 D4	IT50 A1	IT53 C7
2T01 B2	2T06 E4	2T13 B2	2T60 B2	2T63 D5	3T06 D7	5T25 C6	6T05 D6	9T01 B2	9T07 E4	9T14 C5	FT50 B1	FT53 C6	IT51 D4	IT54 D7
2T04 C5	2T09 D5	2T15 D5	2T61 B2	3T03 B1	5T20 B1	6T01 B2	6T08 D5	9T04 D4	9T08 E4	9T50 E7	FT51 C2	FT54 D5	IT52 D4	



SSB: Sub Tuner

B13B SUB TUNER

B13B

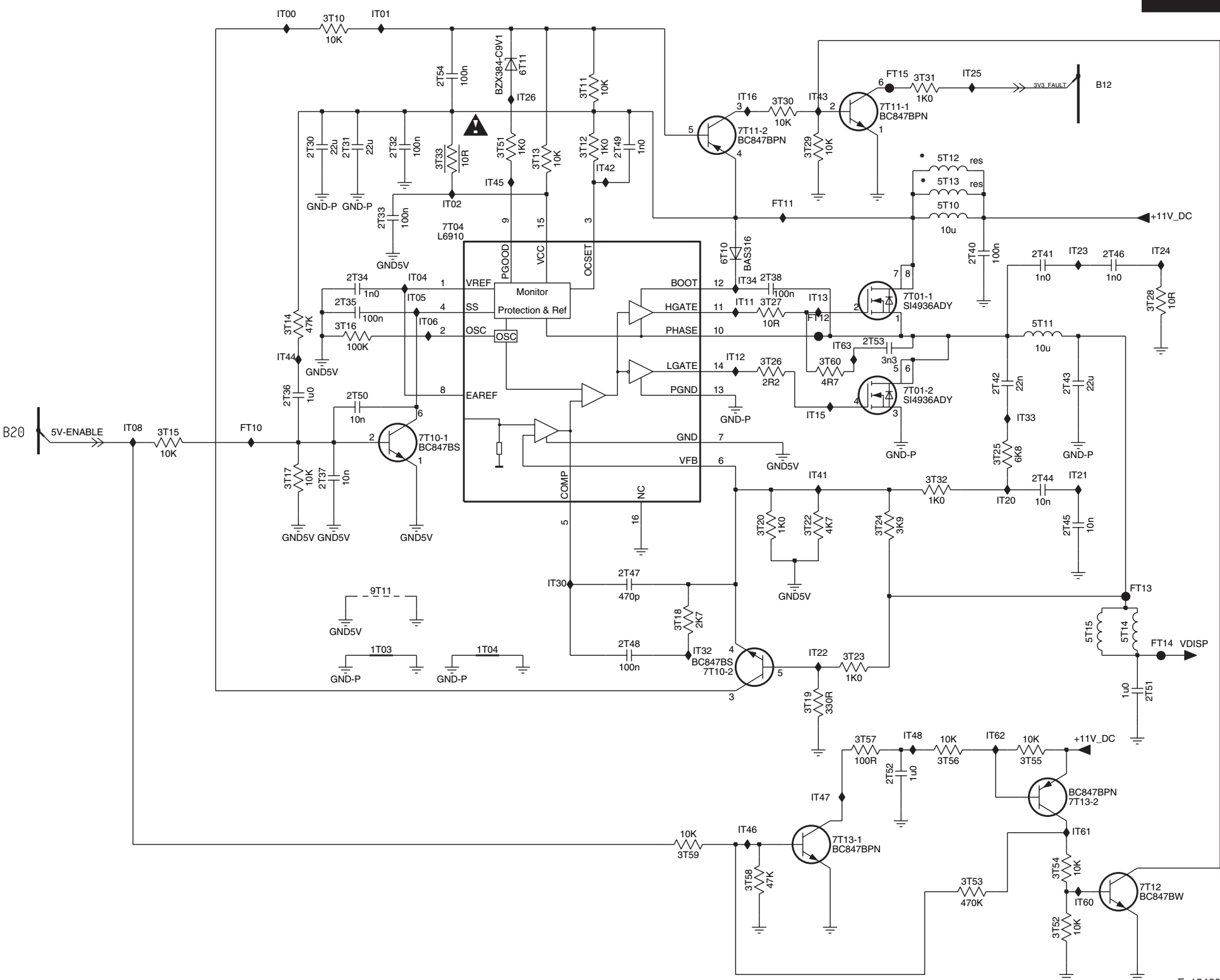


- 1T02 B4
- 2T02 C6
- 2T03 B3
- 2T07 D4
- 2T10 D7
- 2T11 B4
- 2T14 B3
- 2T16 D7
- 2T18 D4
- 2T19 C6
- 2T20 B3
- 2T21 D6
- 2T22 D6
- 3T04 B3
- 5T02 C6
- 5T03 C7
- 5T04 B6
- 6T02 B3
- 6T04 B4
- 6T06 C6
- 6T07 D6
- 9T02 B3
- 9T03 D4
- 9T06 D4
- 9T09 D4
- 9T10 D5
- FT04 C4
- FT05 D6
- IT07 D4
- IT09 C7
- IT10 A3
- IT17 B6
- IT18 D4
- IT19 D5

SSB: DC/DC Converter

B13C DC - DC CONVERTER

B13C



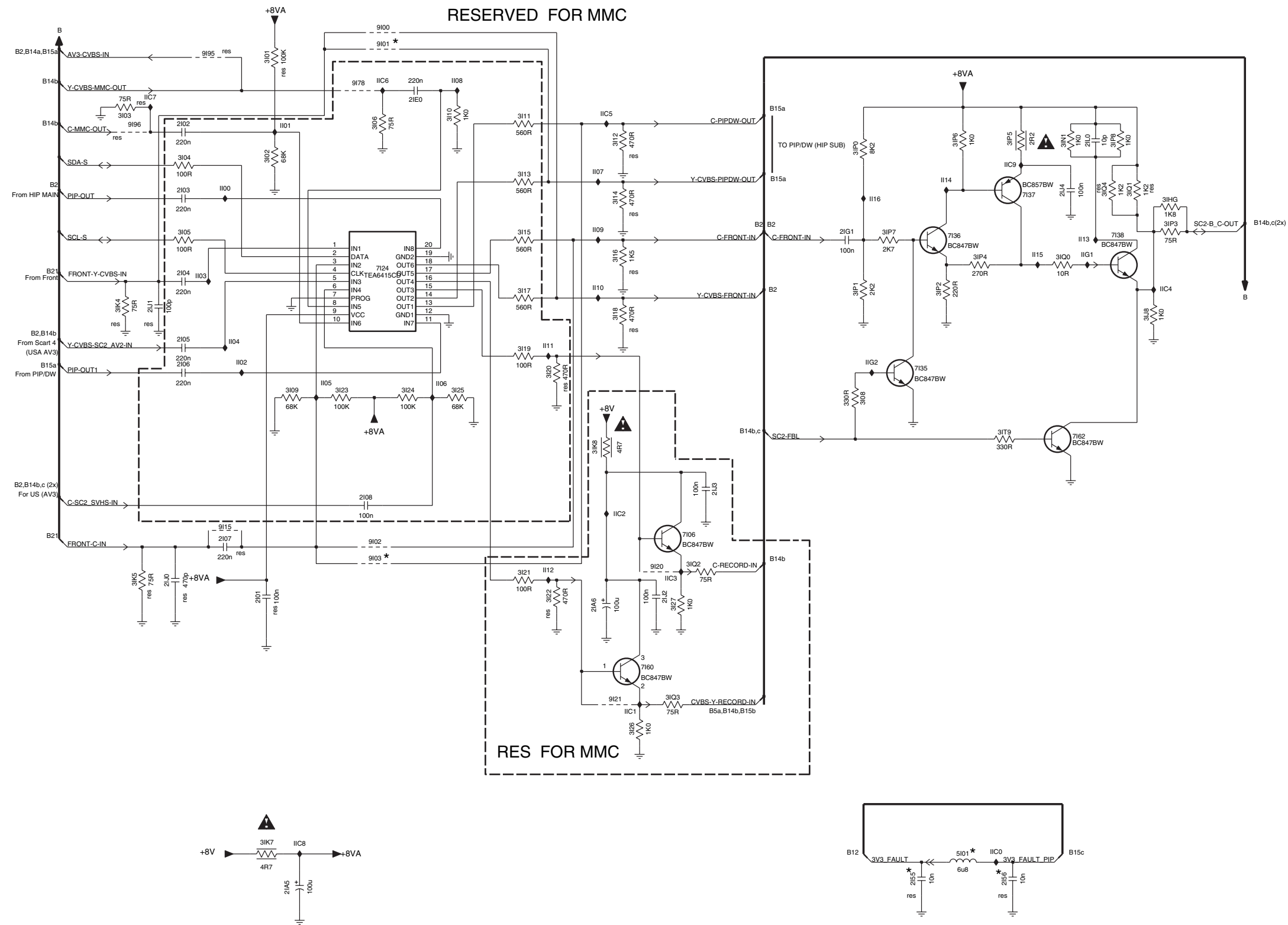
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1T04 E5	9T11 D4
2T30 B4	FT10 C4
2T31 B4	FT11 B7
2T32 B4	FT12 C7
2T33 B4	FT13 D9
2T34 B4	FT14 E9
2T35 B4	FT15 A7
2T36 C4	IT00 A4
2T37 D4	IT01 A4
2T38 B7	IT02 B5
2T40 B8	IT04 B5
2T41 B8	IT05 B5
2T42 C8	IT06 C5
2T43 C8	IT08 C3
2T44 D8	IT11 B7
2T45 D8	IT12 C6
2T46 B9	IT13 B7
2T47 D6	IT15 C7
2T48 E6	IT16 A7
2T49 B6	IT20 D8
2T50 C4	IT21 C9
2T51 E9	IT22 E7
2T52 E7	IT23 B9
2T53 C7	IT24 B9
2T54 A5	IT25 A8
3T10 A4	IT26 A5
3T11 A6	IT30 D5
3T12 B6	IT32 E6
3T13 B5	IT33 C8
3T14 C4	IT34 B7
3T15 C3	IT41 C7
3T16 C4	IT42 B6
3T17 D4	IT43 A7
3T18 D6	IT44 C4
3T19 E7	IT45 B5
3T20 D7	IT46 F7
3T22 D7	IT47 E7
3T23 E7	IT48 E7
3T24 D7	IT60 F9
3T25 C8	IT61 F9
3T26 C7	IT62 E8
3T27 B7	IT63 C7
3T28 B9	
3T29 B7	
3T30 A7	
3T31 A8	
3T32 D8	
3T33 B5	
3T51 B5	
3T52 F8	
3T53 F8	
3T54 F8	
3T55 E8	
3T56 E8	
3T57 E7	
3T58 F7	
3T59 F6	
3T60 C7	
5T10 B8	
5T11 C8	
5T12 B8	
5T13 B8	
5T14 D9	
5T15 D9	
6T10 B6	
6T11 A5	
7T01-1 B7	
7T01-2 C7	
7T04 B5	
7T10-1 C5	
7T10-2 E6	
7T11-1 A7	
7T11-2 A6	
7T12 F9	
7T13-1 F7	

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B14A I/O1: MMC

B14A



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B14B I/O 2: CONNECTIONS

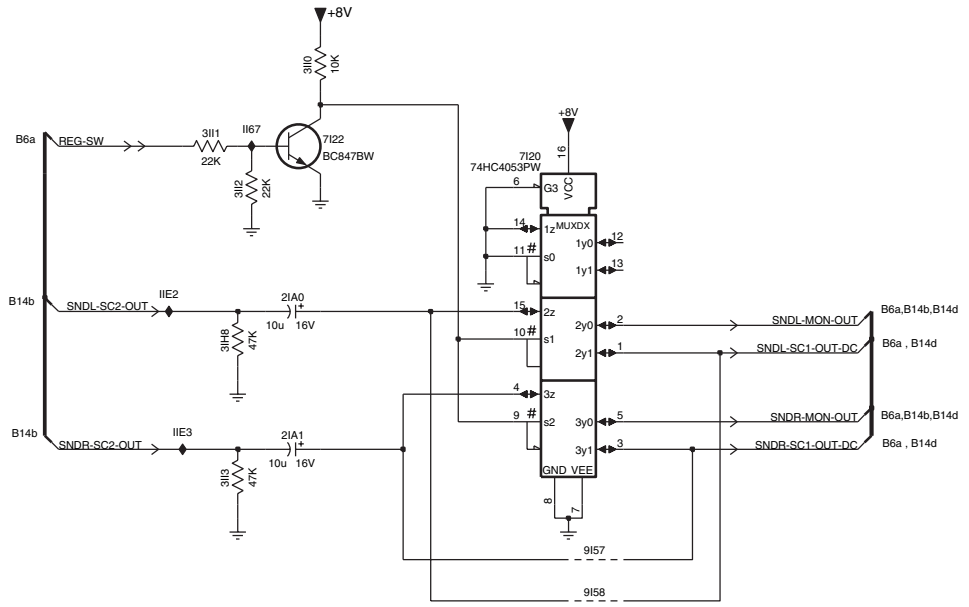
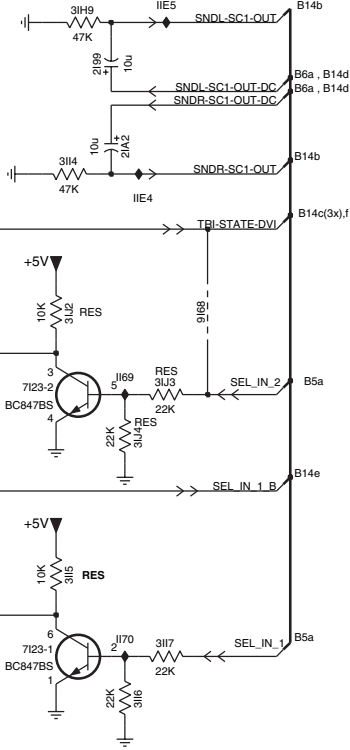
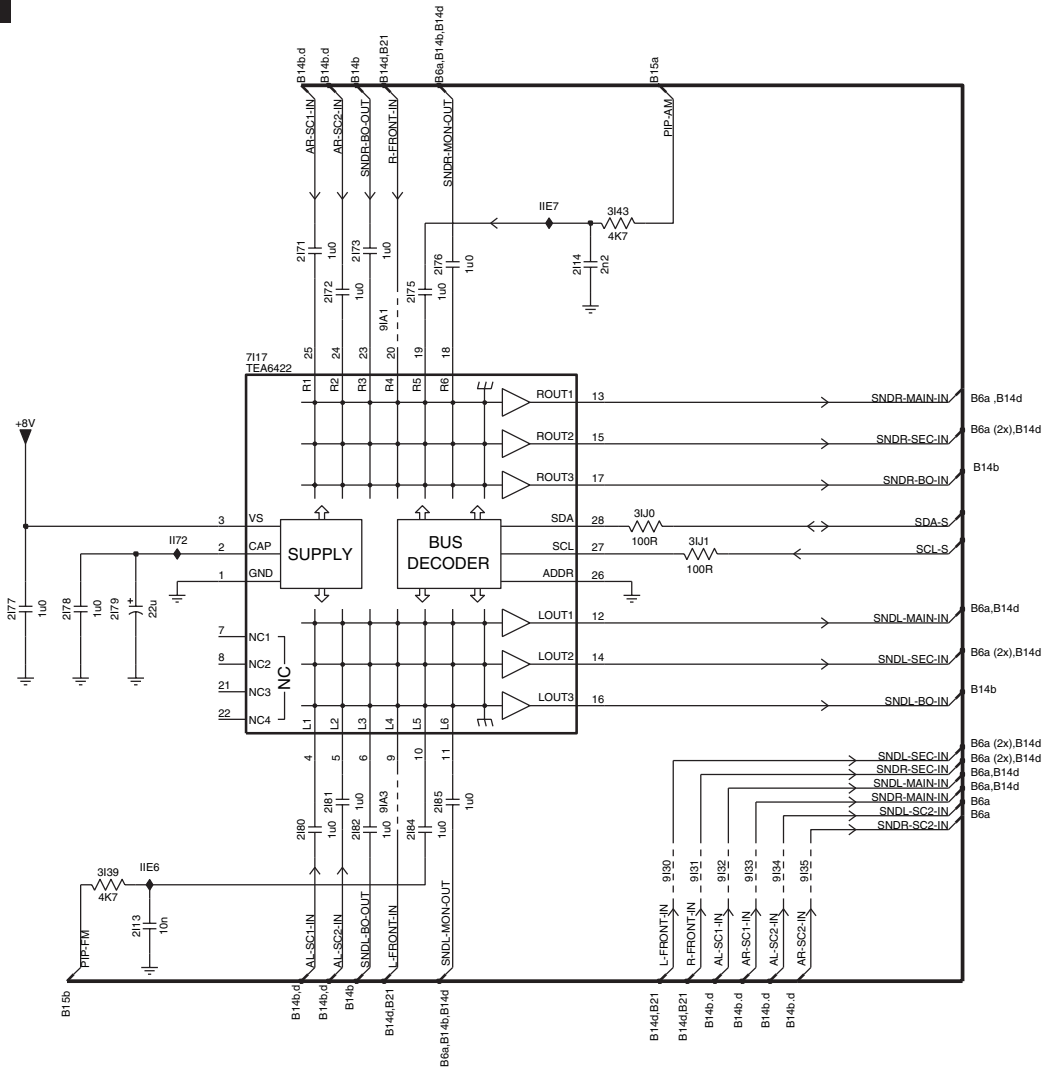


A	1101-I A3	3171 B5	6152 D8	F154 D8
	1101-2 E3	3172 B6	6153 F3	F155 C8
	1102 C6	3173 B5	6154 F3	F156 D8
	1103 D3	3175 C5	6155 F3	F157 B8
	1104-I A7	3176 D5	6156 G3	F158 B8
	1104-2 E7	3177 D6	6157 G3	F159 A8
	1105 F4	3178 D6	6158 H3	F160 F4
	1106 I4	3179 A8	6159 H3	F161 F3
	1108 D4	3180 B8	6160 H3	F162 G3
	1109 H4	3181 C8	6161 H3	F163 H3
B	1111 F9	3182 B8	6162 I3	F164 I3
	1134 A2	3183 C8	6168 E4	F168 J3
	1135 B2	3184 C8	6169 I3	F169 F8
	1136 C3	3186 D8	6170 J3	F191 G1
	1137 B3	3187 D8	6175 C9	F192 H1
	1138 A3	3189 F2	6177 E8	F193 H1
	1139 A7	3190 F3	61A0 C3	F194 I8
	1140 B7	3191 F2	61A7 I12	F196 F8
	1141 C6	3192 F3	7101-I C11	F1A9 F8
	1142 D6	3194 G2	7101-2 D11	F1C1 H8
C	1143 D8	3195 G3	7102-1 E11	I125 A1
	1144 C8	3196 H2	7102-2 E11	I126 B1
	1145 C8	3197 H3	7103-1 G11	I127 C1
	1146 B8	3198 J13	7103-2 F11	I129 B4
	1147 A8	3199 H2	7104 F11	I132 A6
	1148 F4	31A0 H3	7105-1 H11	I133 B6
	1149 F4	31A1 J13	7105-2 I11	I134 D8
	1150 G4	31A2 I2	7107 B12	I135 B8
	1152 H4	31A3 J2	7109 B11	I136 B9
	1154 I4	31A4 C11	7121-1 F12	I137 A9
D	1158 J3	31A5 D11	7121-2 E13	I138 E2
	1171 C2	31A6 E11	7144-1 J12	I141 I12
	1172 C2	31A7 E11	7144-2 I13	I142 H2
	1173 D2	31A8 F11	7149 H13	I143 I2
	1174 D2	31A9 G11	7150-1 J11	I144 I11
	1175 D7	31B0 G11	7150-2 I11	I145 I12
	1176 D8	31B2 A4	9104 I7	I146 B11
	2111 H11	31B4 B11	9108 H7	I147 B11
	2112 J12	31B5 B11	9109 G7	I148 B12
	2115 F13	31C1 I12	9110 B8	I149 B10
E	2116 A1	31C2 I13	9111 H7	I1A0 C1
	2117 B1	31C3 H13	9112 I8	I1A1 A4
	2118 B4	31C4 B4	9113 I11	I1A2 B4
	2119 B4	31C6 A9	9116 C9	I1A3 C7
	2120 C4	31C9 F12	9117 D1	I1A4 G2
	2121 B6	31D0 B12	9118 D4	I1A5 F2
	2122 A6	31D1 F13	9119 D9	I1A9 I12
	2123 B9	31D7 H12	9122 I7	I1B0 I11
	2124 B9	31D8 J10	9139 B5	I1D0 B12
	2125 C9	31H1 H12	9150 H11	I1D1 H12
F	2126 F2	31K2 A9	9151 F12	I1D2 H10
	2127 F2	31K3 B9	9160 I7	I1D3 I12
	2128 G2	31N5 A4	9192 G8	I1D4 J11
	2129 H2	31N6 B4	9193 H7	I1D5 J13
	2130 I2	31S2 B9	9194 G8	I1D6 I13
	2131 H2	31T0 F2	9197 I7	I1D7 H11
	2132 H2	31T1 F2	91A4 E12	I1G3 C11
	2136 J2	31T2 G2	91A5 E12	I1G4 D11
	2139 H11	31T3 H2	91A6 G13	I1G5 E11
	2146 B11	31T4 I2	91A7 G13	I1G6 E11
G	2147 J13	31W4 H13	91B1 G6	I1G7 F11
	21A4 I12	31W5 H13	91B2 H6	I1G8 H11
	21C0 F1	1101 F13	1101 H9	I1G9 G11
	21C1 F1	1111 H12	F111 I8	I1H0 B12
	21C2 G1	1112 I12	F112 I8	I1H1 H13
	21C9 D6	1113 I12	F113 I8	I1H2 I11
	21H3 I13	1122 A2	F114 H8	
	3107 I11	1123 A2	F116 G8	
	3128 I1	1124 B2	F118 G8	
	3134 I11	1125 B2	F119 G8	
H	3135 D9	1126 C2	F120 G8	
	3136 J11	1127 C2	F121 H8	
	3137 H12	1128 D2	F122 H8	
	3138 J11	1129 D2	F132 A2	
	3150 A1	1130 A3	F133 B2	
	3151 A2	1131 B3	F134 B2	
	3152 B1	1132 B3	F135 B2	
	3153 B2	1133 B3	F136 C2	
	3154 B1	1133 D3	F137 C2	
	3155 C2	1136 D3	F138 C2	
I	3156 C1	1137 A6	F139 D2	
	3157 C2	1138 A6	F140 D2	
	3158 C1	1139 B6	F141 A3	
	3159 D2	1140 B6	F142 B3	
	3160 D2	1141 C6	F143 B3	
	3161 A4	1142 C6	F144 D3	
	3162 B4	1143 D6	F145 D3	
	3163 B4	1144 D6	F146 A6	
	3164 C4	1145 A8	F147 B7	
	3165 D4	1146 B8	F148 B7	
J	3166 D3	1147 B8	F149 B7	
	3167 D3	1148 B8	F150 E8	
	3168 D4	1149 C8	F151 C7	
	3169 A5	1150 C8	F152 D6	
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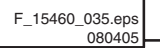
SSB: I/O4: Audio

B14D I/O4: AUDIO

B14D



1110 G2	2100 H2	2138 G3	2160 E2	21B7 D4	21K6 G5	31B3 E11	31BA E9	31D2 C4	31F0 F8	31F8 D4	31GD B11	31H2 B11	31W9 B5	5110 C5	5147 G6	7108 B4	7115 E4	7146 C10	F115 G2	I177 C4	I182 B11	I187 C6	I1E8 H8
1112 G2	2110 A3	2140 C10	2162 H10	21J5 D6	21K7 G6	31B6 D8	31B8 E9	31D3 A12	31F1 D1	31F9 E3	31GE C11	31H4 C12	5102 E9	5121 H8	6103 F12	7110 E10	7116-1 E3	9105 F10	FC14 G2	I178 E2	I183 E4	I188 C12	I1E9 G9
1179 H3	2133 D9	2148 E3	2164 G9	21J6 H9	21S6 H4	31B7 D9	31C0 C9	31D4 C12	31F2 D2	31GA A12	31GF C11	31S3 H9	5104 D10	5122 H8	6104 E12	7111 G8	7116-2 E1	9106 F10	FC5 F2	I179 B12	I184 E3	I189 E11	I1F1 C3
1199 H2	2134 D10	2152 C5	2165 G3	21J7 I9	3100 H8	31B8 G10	31C5 C9	31DE D6	31F3 D2	31GB C12	31GH H8	31S6 I9	5105 F3	5145 G5	6105 D5	7113 E5	7140 C11	9199 C12	I175 D4	I180 E1	I185 E10	I195 E12	I1H4 B11
1M15 F2	2137 B10	2159 E11	21A3 G8	21K5 G5	31B1 E11	31B9 G9	31C7 C10	31E0 A11	31F4 D3	31GC B11	31H0 A12	31W3 B5	5106 G3	5146 G5	6199 F1	7114 B11	7145 C8	91D0 G8	I176 E3	I181 C11	I186 C5	I196 E9	I1H5 C11



B14F I/O6: DIGITAL INPUT

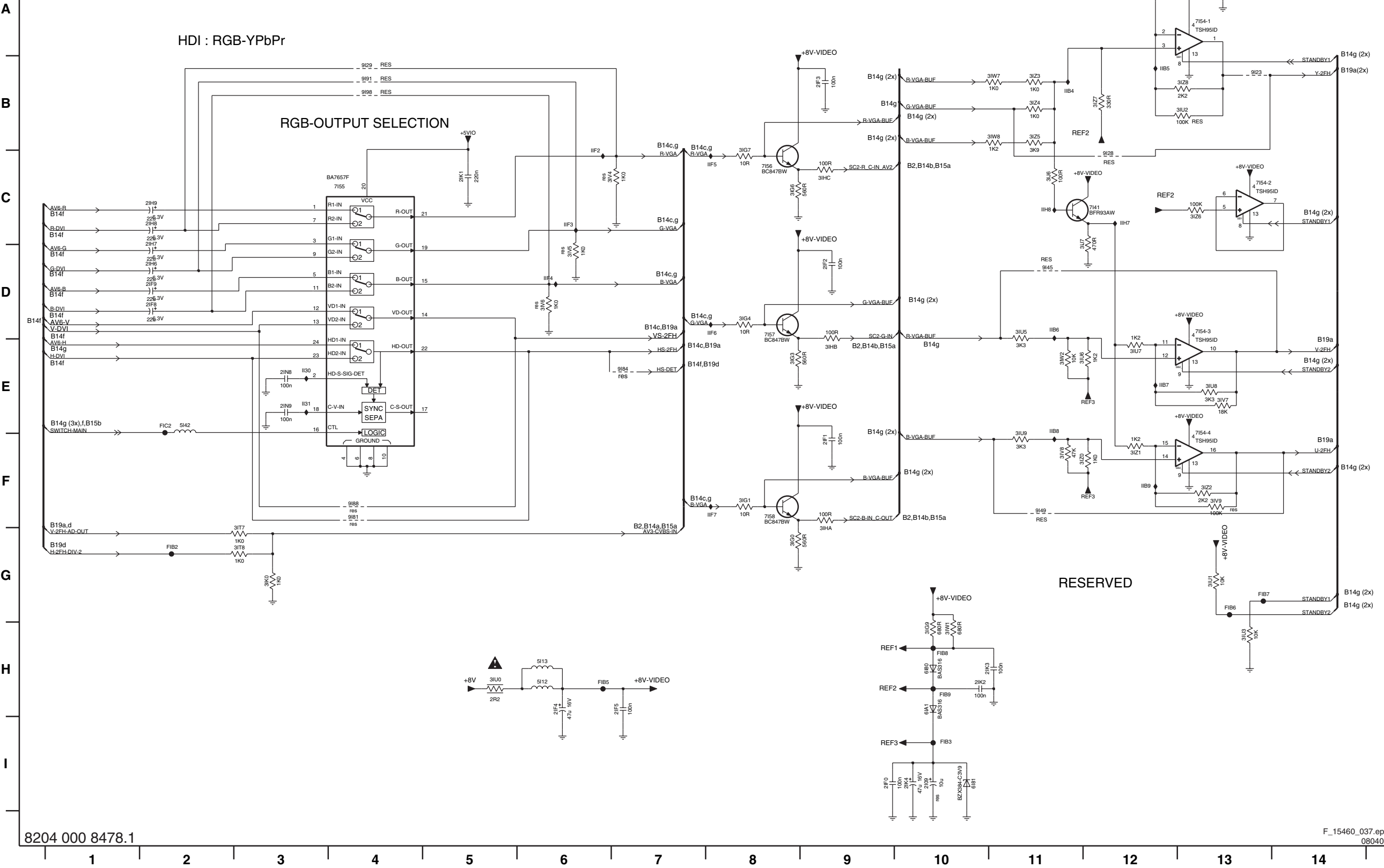


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1001 D2	31T5 I14
1114 D2	31T6 I14
1115 G2	31V0 I9
1116 G2	31V1 J7
1117 D8	31V2 J7
1118 D5	31V3 J7
1119 C5	5130 D1
1200 C4	5131 D1
1212 C3	5132 D1
1153 G4	5133 D1
1155 F2	5134 D1
1156 F3	5135 F1
1157 F4	5136 H1
1159 G4	5137 H1
1160 C2	5138 I13
1161 C2	5139 H5
1162 D2	5140 C1
1164 E2	5141 E1
1165 E2	6101 D3
1166 F2	6106 D4
1167 F2	6107 C5
2166 I12	6108 C6
2167 I13	6109 C8
2168 I13	6114 F5
2169 I13	6115 F5
2170 I14	6116 F6
2186 I14	6118 F8
2187 I13	6118 F7
2189 G13	6120 E4
2190 G12	6121 E4
2191 G12	6163 I7
2193 F13	6164 I7
2194 F12	6166 J4
2195 F12	7118 F1
2196 F13	7119 I6
2197 F9	7151 I8
2198 F9	7152 I8
2198 A9	7153-1 J1
2193 F9	7161 B1
2195 H8	7164 B1
2199 H4	7165 A9
2105 H6	9107 F1
2106 D7	9114 G1
2107 C6	9185 G1
2108 E10	9183 B7
2111 E10	9101 B4
2112 E11	9102 B4
2113 E11	9103 B4
2114 E11	9104 B5
2115 E12	9105 B5
2116 E12	9106 B5
2117 E12	9108 B7
2119 D9	9109 B7
2120 D9	F100 C2
2123 G10	F101 C2
2124 G10	F102 E2
2125 G11	F103 E2
2126 G12	F104 F2
2127 G13	F105 F2
2128 G12	F106 G2
2129 G13	F107 G2
21H1 H5	F108 E2
21H2 D13	F109 E2
21H4 D12	F129 H1
21H5 D11	F130 G1
21J8 I8	F171 D2
21J9 I9	F172 I5
3129 D4	F173 I10
3130 D4	F174 I8
3131 D5	F175 H1
3132 D6	F176 C1
3133 C7	F177 H1
3140 C7	F178 H1
3141 D8	F179 I14
3142 E2	F180 B4
3144 I4	F181 C4
3145 I4	F182 C5 C5
3146 I5	F184 C8
3147 I5	F183 C6 F2
3148 I5	F184 C8
3149 I7	F183 C2 F2
31B B12	I160 B10
3118 B11	I161 D11
31K9 B9	I162 D11
31Q5 I6	I163 D11
31Q6 I7	I164 I11
31Q7 I8	I165 E10
31Q8 I9	I166 E10
31Q9 I9	I168 B11
31R0 I9	I192 E13
31R1 I10	I193 G13
31R2 I8	I194 G14
31R3 I8	I197 F14
31R4 I9	I100 J7
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SSB: I/O: 7

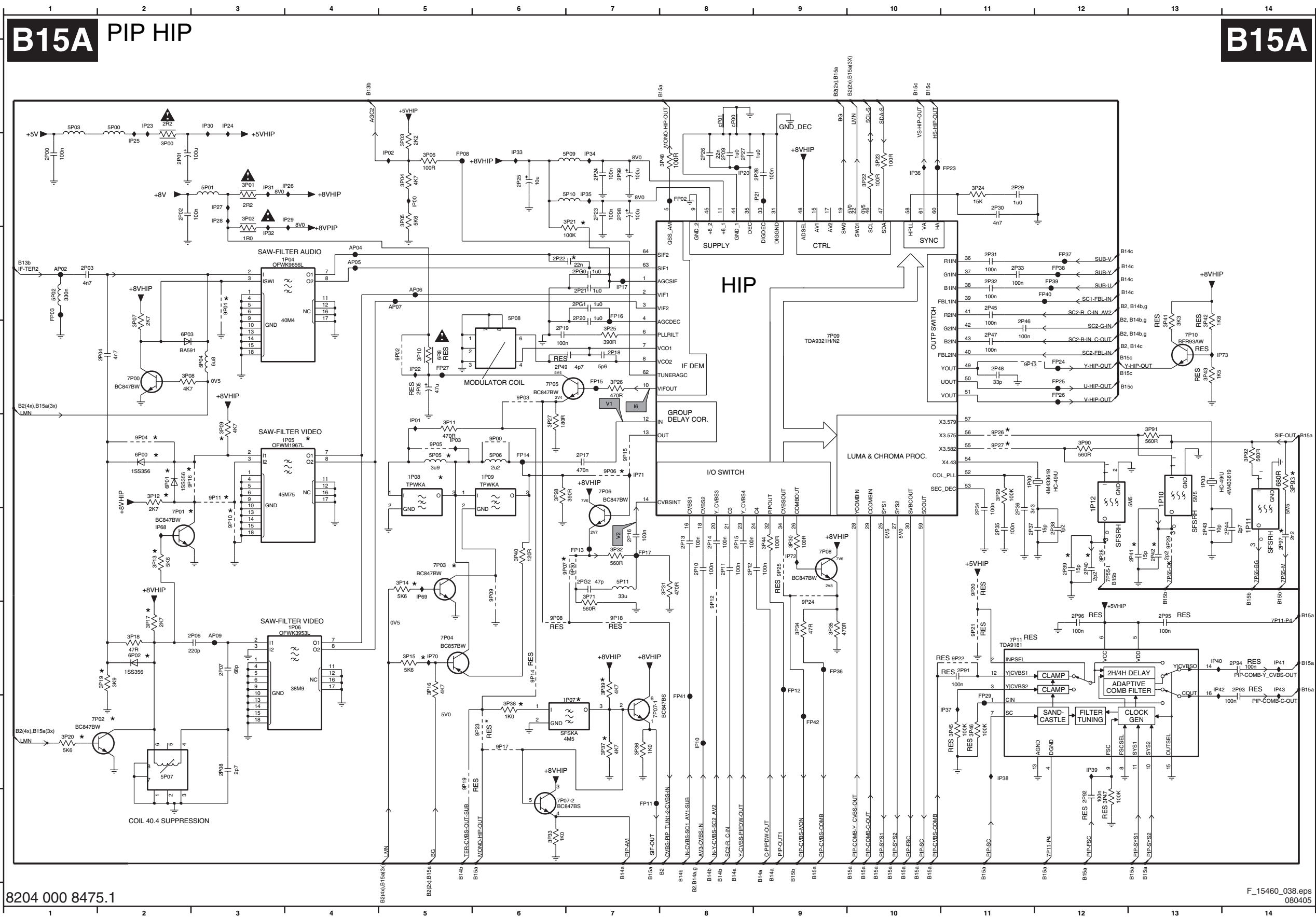
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B14G



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- 21F1 F9
- 21F2 D9
- 21F3 B9
- 21F4 H6
- 21F5 H7
- 21F6 A13
- 21F8 D2
- 21F9 D2
- 21H6 D2
- 21H7 D2
- 21H8 C2
- 21H9 C2
- 21K1 C5
- 21K2 H10
- 21K3 H11
- 21K4 I10
- 21N8 E3
- 21N9 E3
- 31G0 G8
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- 31G3 E8
- 31G4 D8
- 31G6 C8
- 31G7 C8
- 31G9 H10
- 31HA F9
- 31HB E9
- 31HC C9
- 31J6 C11
- 31J7 C12
- 31K0 G3
- 31T7 G3
- 31T8 G3
- 31U0 H5
- 31U1 G13
- 31U2 B13
- 31U3 H13
- 31U5 D11
- 31U6 E12
- 31U7 E12
- 31U8 E13
- 31U9 F11
- 31V4 C7
- 31V5 D6
- 31V6 D6
- 31V7 E13
- 31V8 F11
- 31V9 F13
- 31W1 H10
- 31W2 E11
- 31W7 B11
- 31W8 B11
- 31Z0 F12
- 31Z1 F12
- 31Z2 F13
- 31Z3 B11
- 31Z4 B11
- 31Z5 B11
- 31Z6 C13
- 31Z7 B12
- 31Z8 B13
- 31Z9 A12
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- 5113 H6
- 5142 E2
- 6180 H10
- 6181 I10
- 61A1 H10
- 7141 C12
- 7154-A A13
- 7154-B C13
- 7154-C D13
- 7154-D F13
- 7155 C4
- 7156 C8
- 7157 D8
- 7158 F8
- 9123 B13
- 9128 C12
- 9129 B4
- 9145 D11
- 9149 F11
- 9181 F4
- 9184 E7
- 9188 F4
- 9191 B4
- 9198 B4
- FIB2 G2
- FIB3 I10
- FIB5 H6
- FIB6 G13
- FIB7 G13
- FIB8 H10
- FIB9 H10
- FIC2 E2
- I130 E3
- I131 E3
- I1B4 B11
- I1B5 B12
- I1B6 D11
- I1B7 E12
- I1B8 E11
- I1B9 F12
- I1F2 B6
- I1F3 C6
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- I1F5 C8
- I1F6 D8
- I1F7 F8
- I1H7 C12
- I1H8 C11

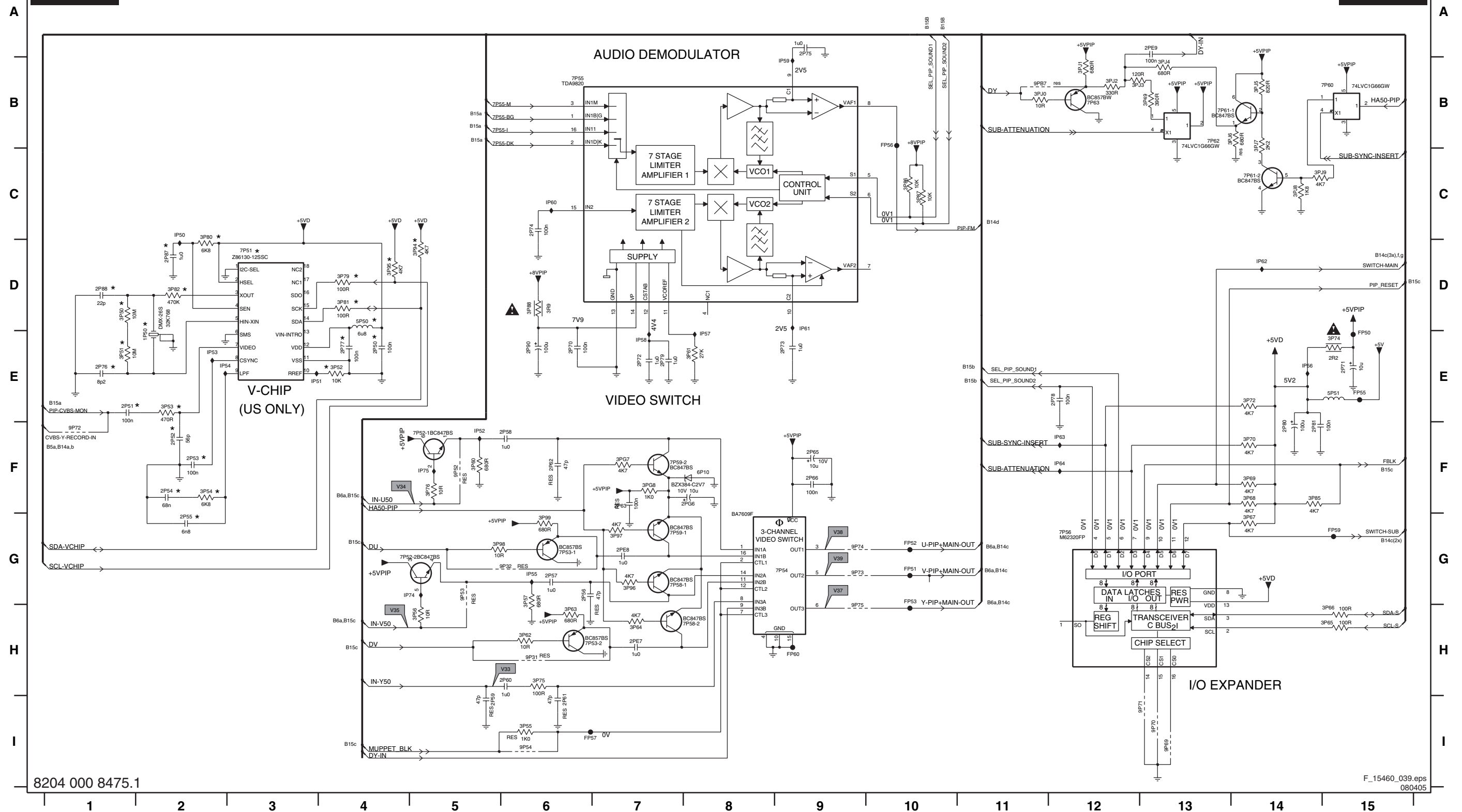
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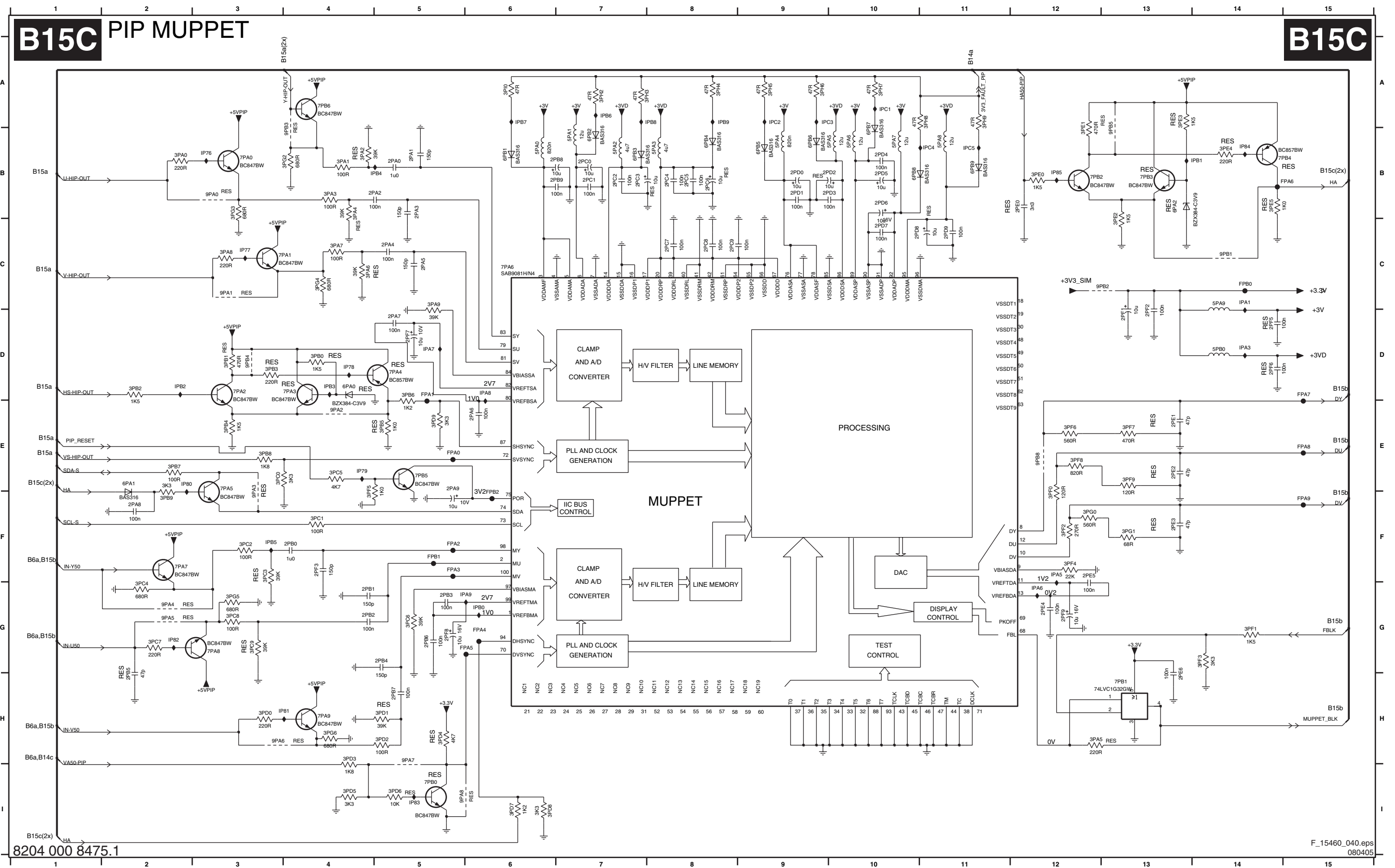
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1P07 H7	3P21 B7	9P27 E11
1P08 E5	3P22 B10	9P28 F12
1P09 E6	3P23 B10	9P29 F13
1P10 E13	3P24 B11	9P30 F7
1P11 F14	3P25 D7	AP02 C1
1P12 E12	3P26 D7	AP04 C4
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2P01 B2	3P28 E6	AP06 C5
2P02 B2	3P29 E11	AP07 C5
2P03 C1	3P30 F9	AP09 G3
2P04 D2	3P31 F8	FP02 B8
2P05 D5	3P32 F7	FP03 C1
2P06 G3	3P33 I6	FP08 B5
2P07 G3	3P34 G9	FP11 I7
2P08 H3	3P35 G9	FP12 G9
2P09 B8	3P36 H7	FP13 F7
2P10 F8	3P37 H7	FP14 E6
2P11 F8	3P38 H6	FP15 D7
2P12 F8	3P39 G7	FP16 C7
2P13 F8	3P40 F6	FP17 F7
2P14 F8	3P41 D13	FP23 B11
2P15 F8	3P42 D13	FP24 D12
2P16 F7	3P43 D13	FP25 D12
2P17 E7	3P44 F9	FP26 D12
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2P20 C7	3P47 I12	FP36 G9
2P21 C7	3P48 B8	FP37 C12
2P22 C6	3P71 F7	FP38 C12
2P23 B7	3P90 E12	FP39 C12
2P24 B7	3P91 E13	FP40 C12
2P25 B6	3P92 E14	FP41 H8
2P26 B8	3P93 E14	FP42 H9
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2P37 F11	5P10 B7	IP24 A3
2P38 F12	5P11 F7	IP25 B2
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2P40 F12	6P01 E2	IP27 B3
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2P42 F13	6P03 D2	IP29 B4
2P43 F13	7P00 D2	IP30 A3
2P44 F14	7P01 F2	IP31 B3
2P45 C11	7P02 H1	IP32 C3
2P46 D11	7P03 F5	IP33 B6
2P47 D11	7P04 G5	IP34 B7
2P48 D11	7P05 D6	IP35 B7
2P49 D6	7P06 E7	IP36 B10
2P91 G11	7P07-1 H7	IP37 H11
2P92 I12	7P07-2 I6	IP38 H11
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2P94 G14	7P09 D9	IP40 G13
2P95 G13	7P10 D13	IP41 G14
2P96 G12	7P11 G11	IP42 G13
2P97 F14	9P00 E6	IP43 G14
2P98 B7	9P01 C3	IP68 F2
2P99 B7	9P02 D5	IP69 F5
2P00 C7	9P03 D6	IP70 G5
2P01 C7	9P04 E2	IP71 E7
2P02 F7	9P05 E5	IP72 F9
3P00 B2	9P06 E7	IP73 D14
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3P04 B5	9P10 F3	
3P05 B5	9P11 E3	
3P06 B5	9P12 G8	
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3P08 D2	9P14 G6	
3P09 E3	9P15 E7	
3P10 D5	9P16 E3	
3P11 E5	9P17 H6	
3P12 E2	9P18 G7	
3P13 F2	9P19 H5	
3P14 F5	9P20 F11	
3P15 G5	9P21 G11	

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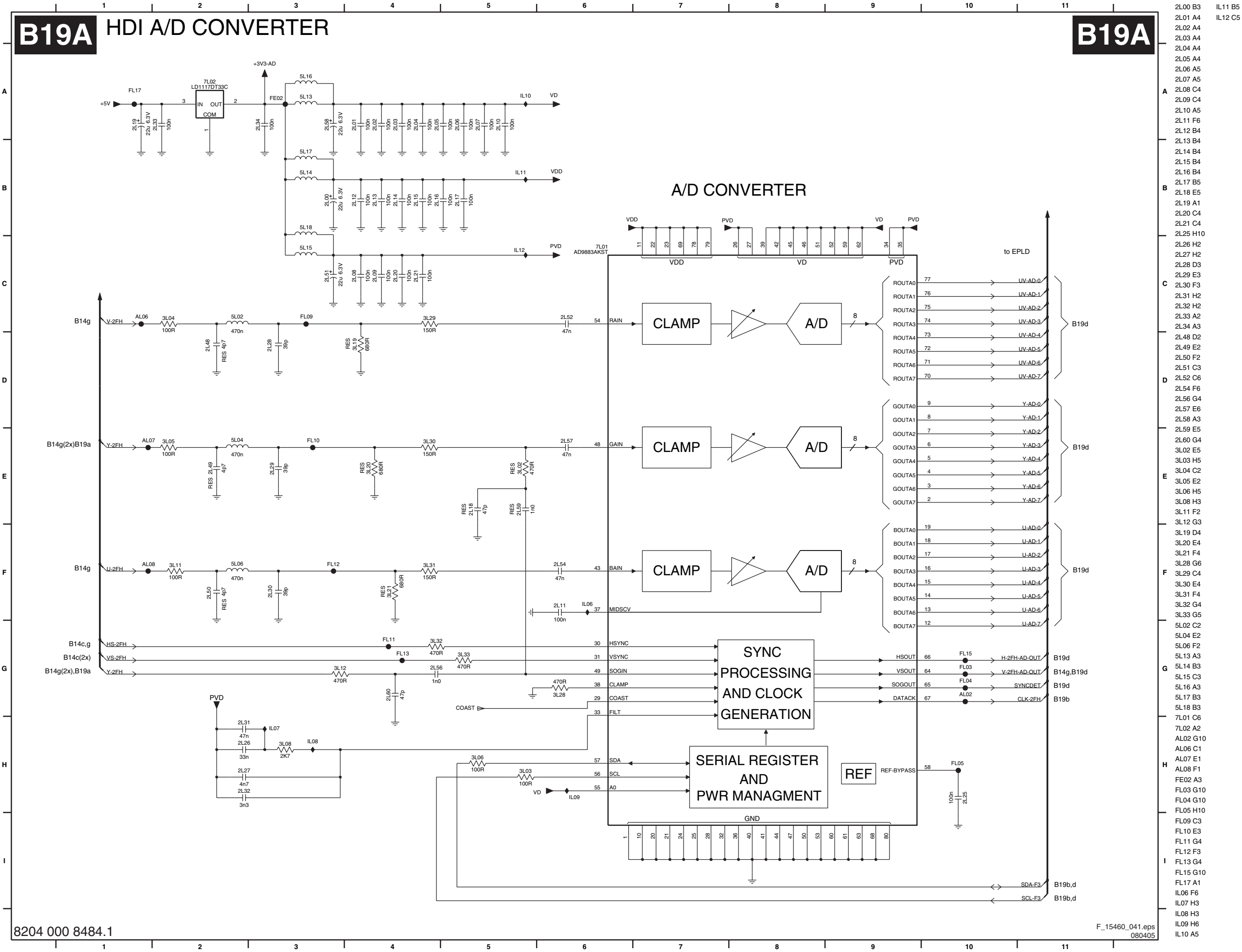
B15B



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SSB: HDI A/D Converter

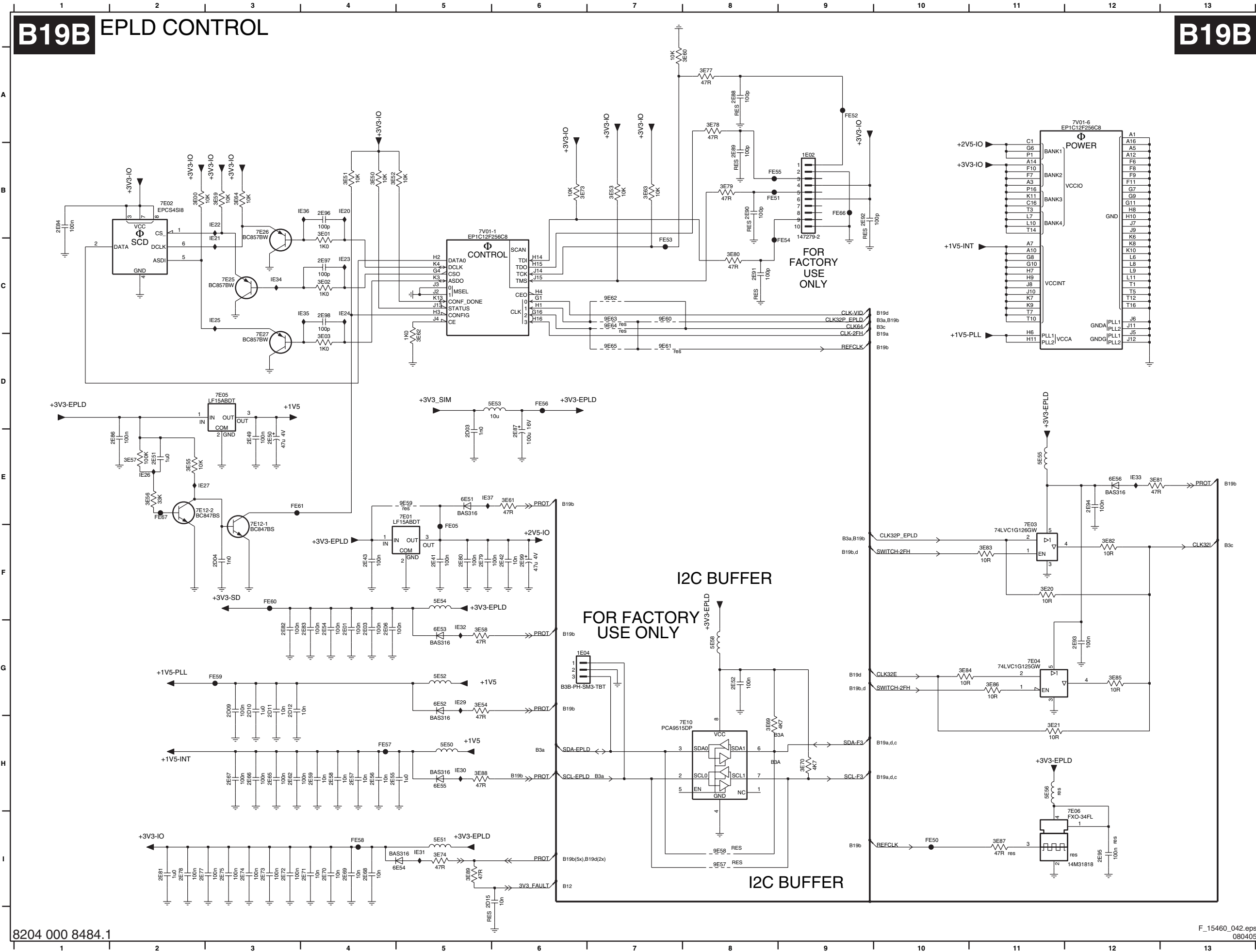


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- 2L08 C4
- 2L09 C4
- 2L10 A5
- 2L11 F6
- 2L12 B4
- 2L13 B4
- 2L14 B4
- 2L15 B4
- 2L16 B4
- 2L17 B5
- 2L18 E5
- 2L19 A1
- 2L20 C4
- 2L21 C4
- 2L25 H10
- 2L26 H2
- 2L27 H2
- 2L28 D3
- 2L29 E3
- 2L30 F3
- 2L31 H2
- 2L32 H2
- 2L33 A2
- 2L34 A3
- 2L48 D2
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- 2L50 F2
- 2L51 C3
- 2L52 C6
- 2L54 F6
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- 5L17 B3
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- 7L02 A2
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- AL06 C1
- AL07 E1
- AL08 F1
- FE02 A3
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- FL04 G10
- FL05 H10
- FL09 C3
- FL10 E3
- FL11 G4
- FL12 F3
- FL13 G4
- FL15 G10
- FL17 A1
- IL06 F6
- IL07 H3
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- IL09 H6
- IL10 A5
- IL11 B5
- IL12 C5

SSB: EPLD Control

B19B EPLD CONTROL

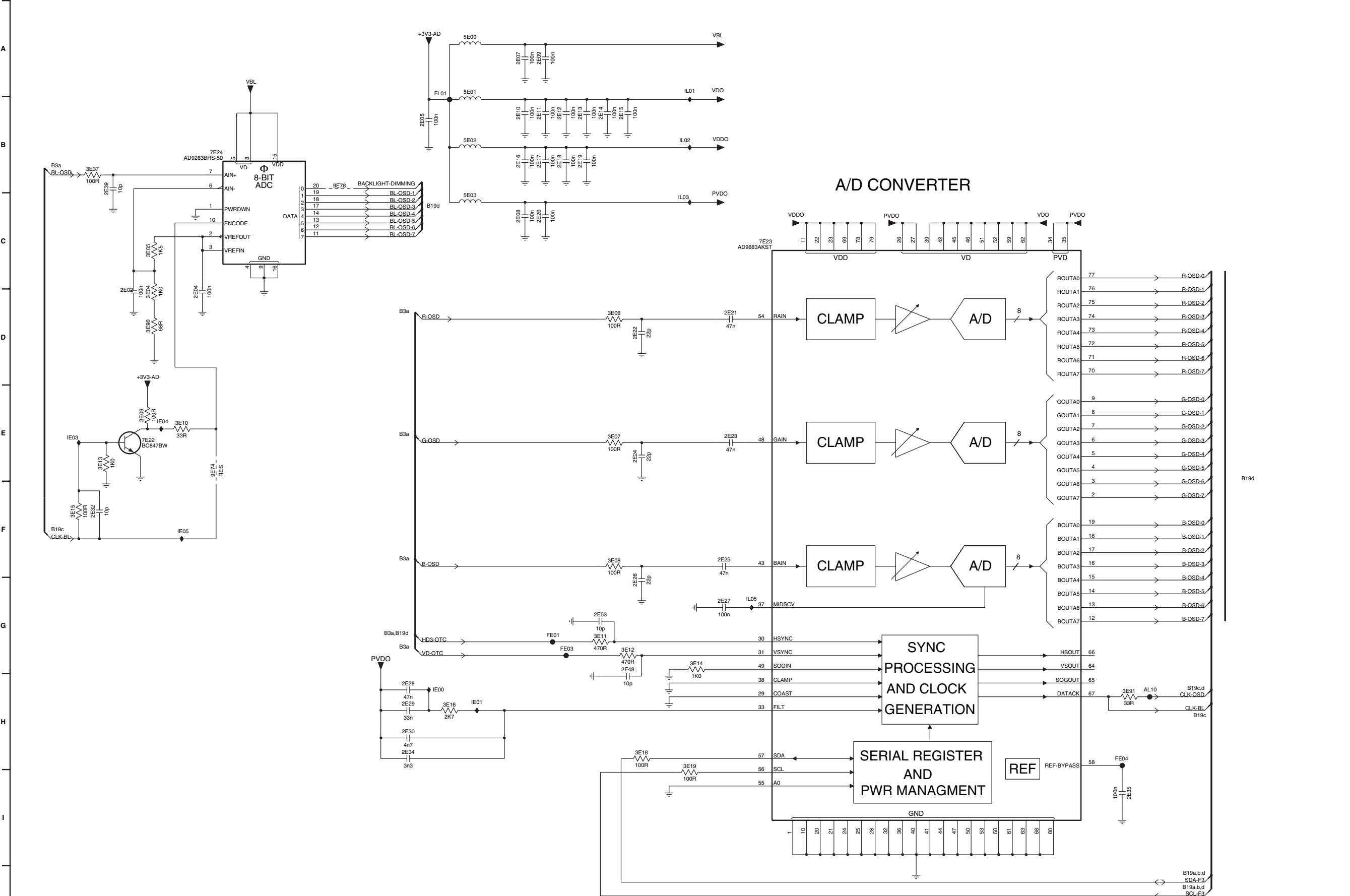
B19B



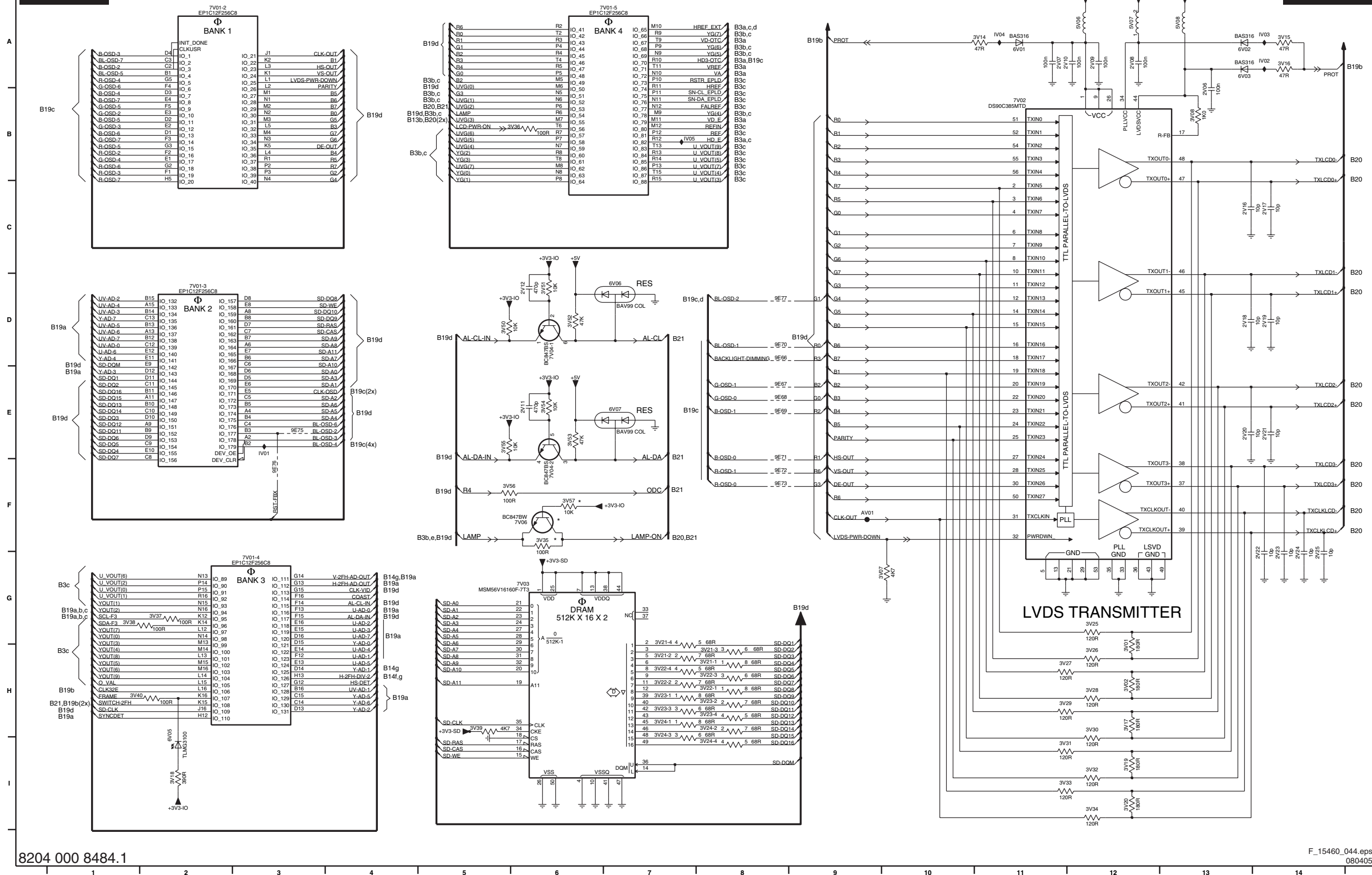
SSB: EPLD OSD

B19C EPLD OSD

B19C



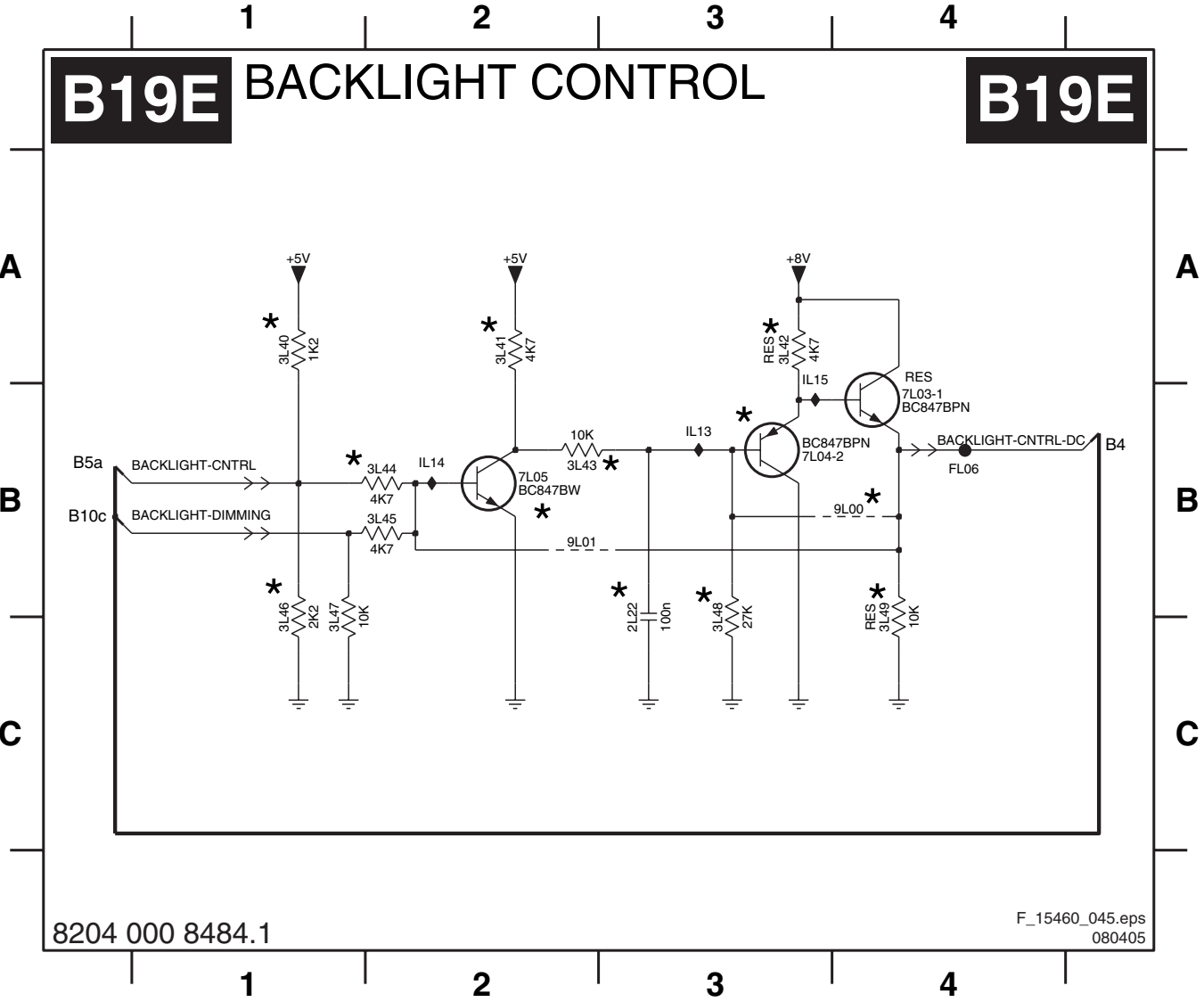
B19D EPLD I/O



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SSB: Backlight Control

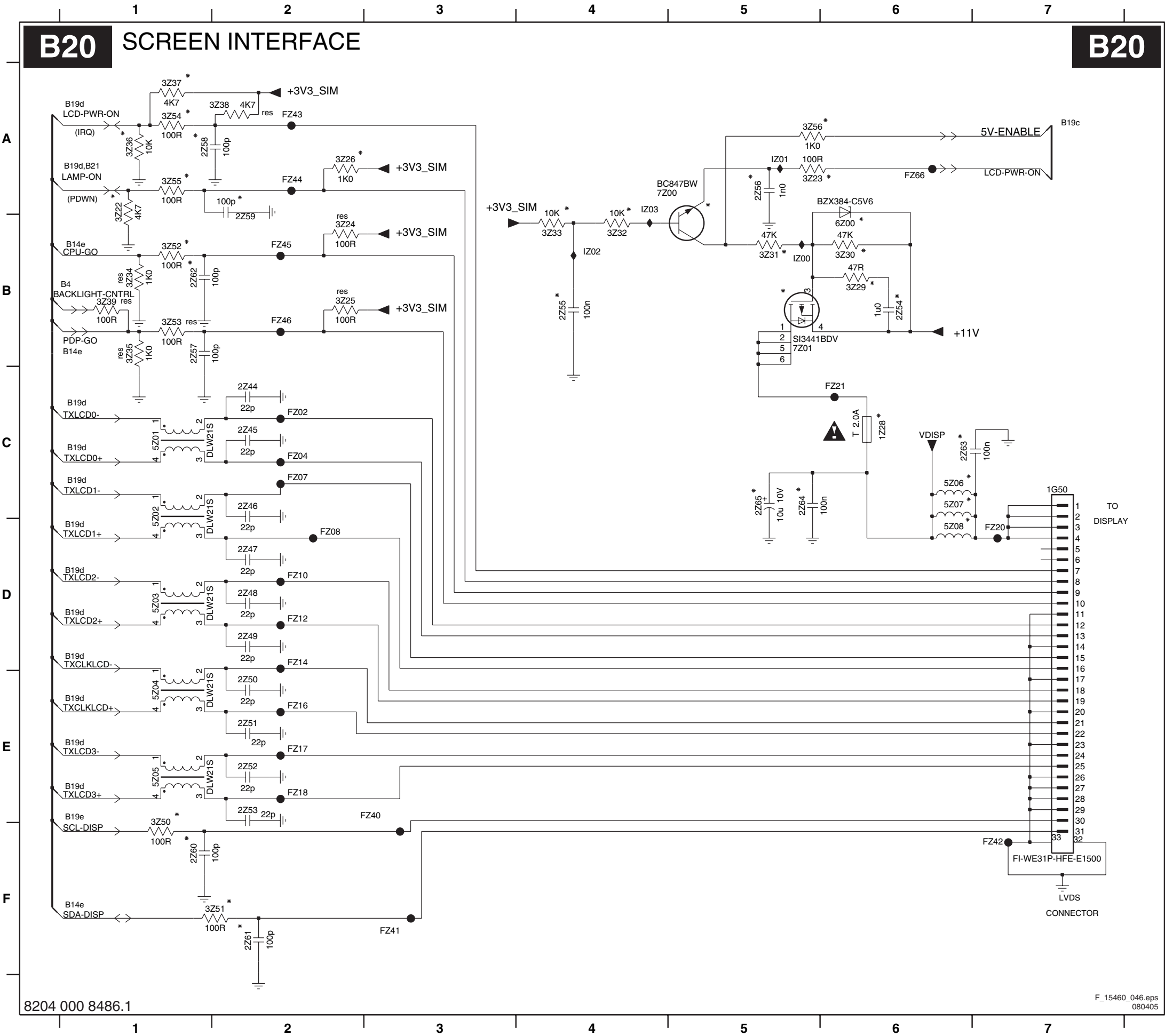
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3L40 A1	3L42 A3	3L44 B2	3L46 B1	3L48 B3	7L03-1 B4	7L05 B2	9L01 B2	IL13 B3	IL15 A3



Personal Notes:

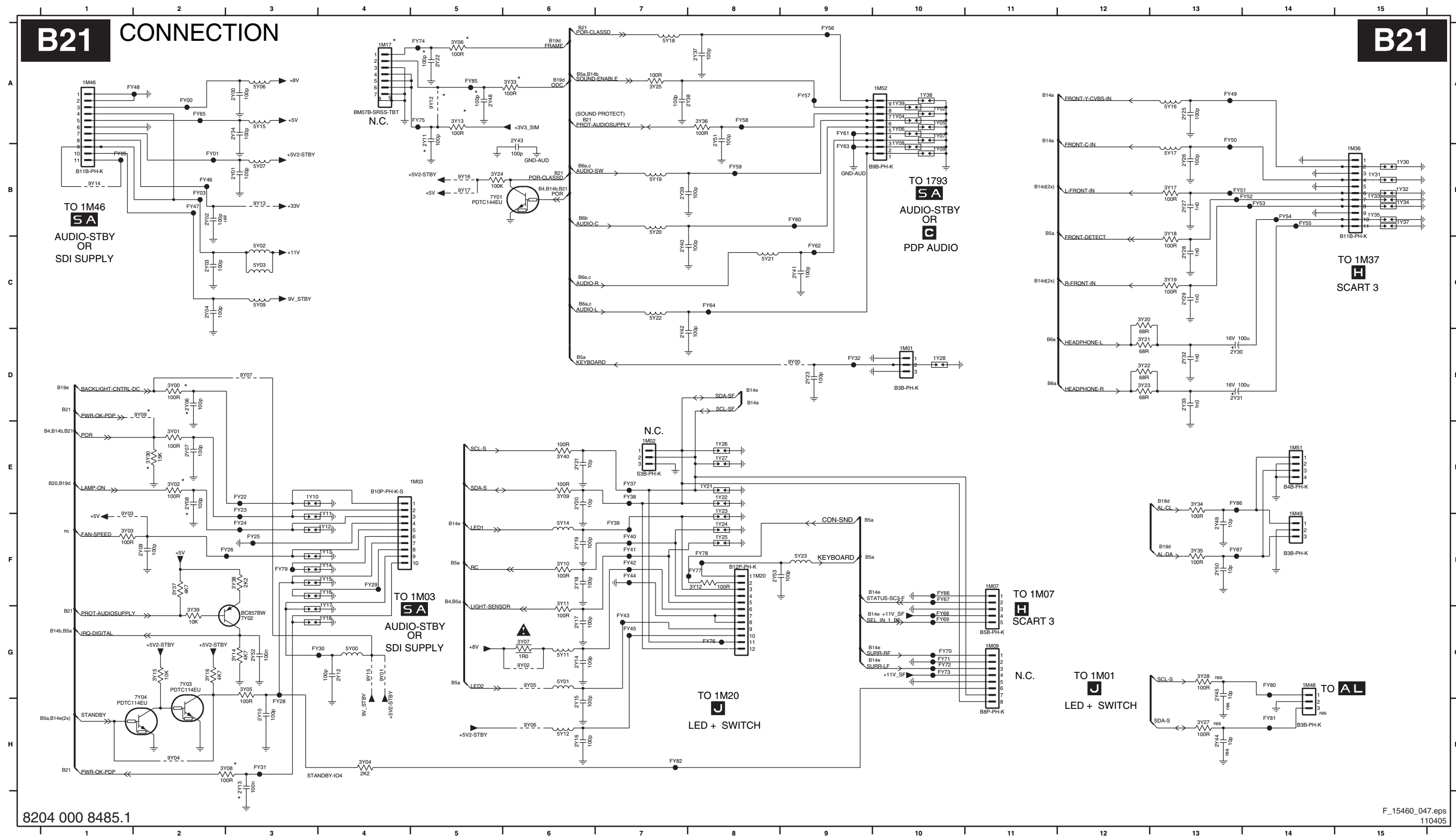
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SSB: Screen Interface

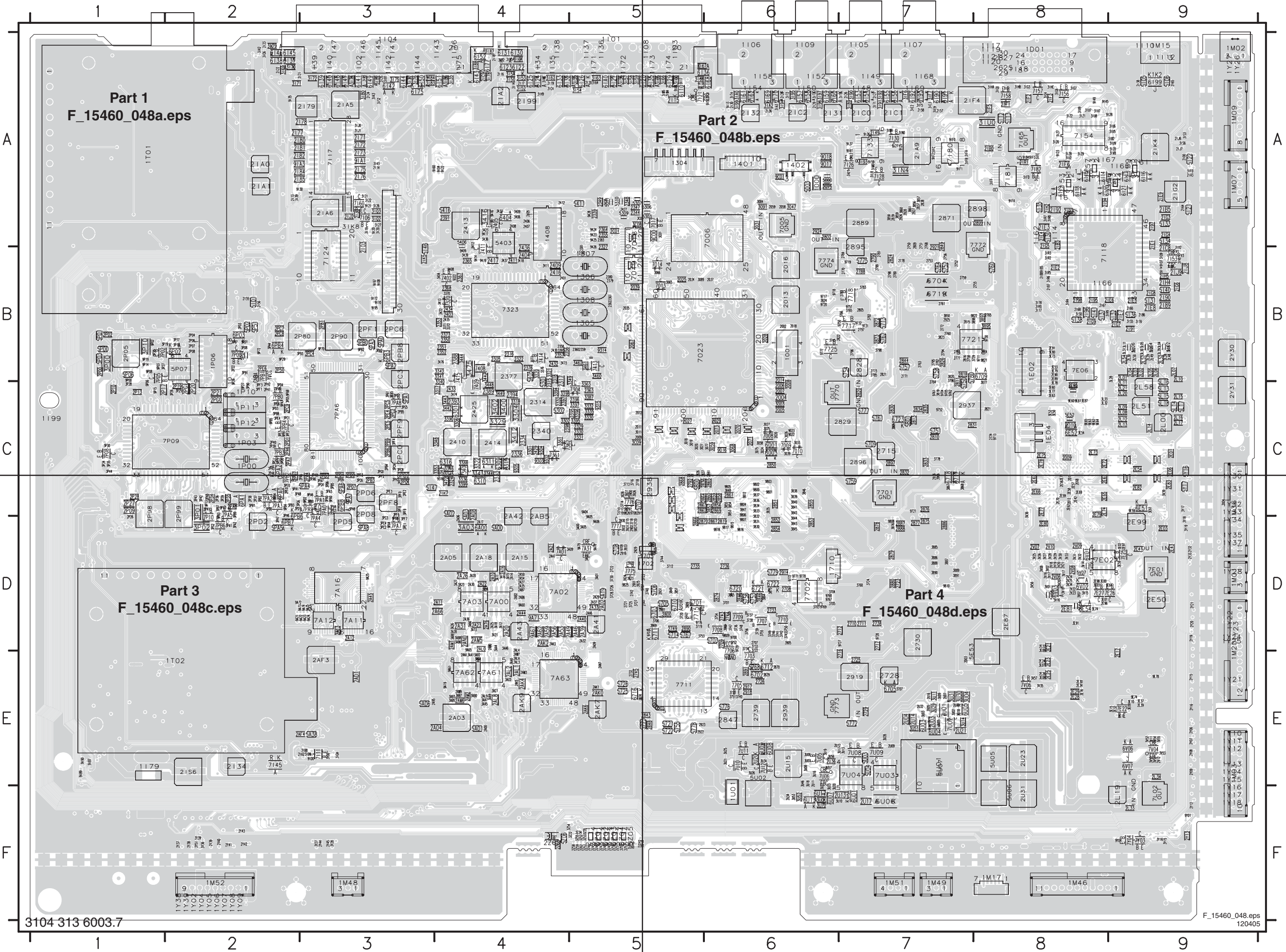


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2Z48 D2	7Z00 A4
2Z49 D2	7Z01 B5
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2Z51 E2	FZ04 C2
2Z52 E2	FZ07 C2
2Z53 E2	FZ08 D2
2Z54 B6	FZ10 D2
2Z55 B4	FZ12 D2
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2Z57 B1	FZ16 E2
2Z58 A1	FZ17 E2
2Z59 A2	FZ18 E2
2Z60 F1	FZ20 D7
2Z61 F2	FZ21 C6
2Z62 B1	FZ40 E3
2Z63 C6	FZ41 F3
2Z64 C5	FZ42 F7
2Z65 C5	FZ43 A2
3Z22 A1	FZ44 A2
3Z23 A5	FZ45 B2
3Z24 B2	FZ46 B2
3Z25 B2	FZ66 A6
3Z26 A2	IZ00 B5
3Z28 C6	IZ01 A5
3Z29 B6	IZ02 B4
3Z30 B6	IZ03 A4
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3Z33 B4	
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3Z35 B1	
3Z36 A1	
3Z37 A1	
3Z38 A2	
3Z39 B1	
3Z50 F1	
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3Z53 B1	
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3Z55 A1	
3Z56 A5	
5Z01 C1	
5Z02 C1	
5Z03 D1	
5Z04 E1	

1M01 D10	1M36 B15	1Y04 A10	1Y11 E4	1Y18 G4	1Y27 E8	1Y35 B15	2Y03 C3	2Y11 A5	2Y18 F6	2Y26 B13	2Y33 D13	2Y42 D7	2Y51 A8	3Y04 H4	3Y11 F6	3Y18 B13	3Y25 A7	3Y36 A8	5Y02 C3	5Y14 F6	5Y21 C8	9Y00 D9	9Y07 D3	9Y17 B5	FY24 F3	FY32 D9	FY43 G7	FY50 A13	FY57 A9	FY64 C8	FY71 G9	FY78 F8	FY87 F13
1M02 E7	1M46 A1	1Y05 A10	1Y12 F4	1Y21 E8	1Y28 D10	1Y37 B15	2Y04 C3	2Y12 G4	2Y19 F6	2Y27 B13	2Y34 A8	2Y43 A6	2Y52 G3	3Y05 G3	3Y12 F8	3Y19 C13	3Y27 H13	3Y37 F2	5Y03 C3	5Y15 A3	5Y22 C7	9Y01 G4	9Y09 D2	FY00 A2	FY25 F3	FY37 E7	FY44 F7	FY51 B13	FY58 A8	FY65 A2	FY72 G9	FY79 G3	
1M03 E5	1M48 G14	1Y06 A10	1Y13 F4	1Y22 E8	1Y30 B15	1Y38 A10	2Y06 D2	2Y13 H3	2Y20 E6	2Y28 C13	2Y37 A8	2Y44 H13	2Y53 F9	3Y06 A5	3Y13 A5	3Y20 C12	3Y28 G13	3Y38 F3	5Y06 A3	5Y16 A13	5Y23 F9	9Y02 G6	9Y10 A5	FY01 B2	FY26 F3	FY38 E7	FY45 G7	FY52 B14	FY59 B8	FY66 F10	FY73 G9	FY80 G14	
1M07 F10	1M49 F14	1Y07 A10	1Y14 F4	1Y23 E8	1Y31 B15	1Y39 A10	2Y07 E2	2Y14 G6	2Y21 E6	2Y29 C13	2Y38 A7	2Y45 G13	3Y00 D2	3Y07 G6	3Y14 G3	3Y21 D12	3Y30 A2	3Y38 D2	5Y07 B3	5Y17 B13	7Y01 B5	9Y03 F1	9Y13 B1	9Y03 B2	FY28 H3	FY39 F7	FY46 B2	FY53 B14	FY60 B9	FY67 F9	FY74 A5	FY81 H14	
1M09 G10	1M51 E14	1Y08 A10	1Y15 F4	1Y24 F8	1Y32 B15	2Y00 A3	2Y08 E2	2Y15 H6	2Y22 A5	2Y30 D13	2Y39 B7	2Y48 A5	3Y01 E2	3Y08 H3	3Y15 G2	3Y22 D12	3Y33 A6	3Y40 E6	5Y09 C3	5Y18 A7	7Y02 G3	9Y04 H2	9Y14 B3	FY05 B1	FY29 F4	FY40 F7	FY47 B2	FY54 B14	FY61 C7	FY68 G9	FY75 A5	FY82 H7	
1M17 A4	1M52 A10	1Y09 B10	1Y16 F4	1Y25 F8	1Y33 B15	2Y01 B3	2Y09 F2	2Y16 H6	2Y23 D9	2Y31 D13	2Y40 C7	2Y49 F13	3Y02 E2	3Y09 E6	3Y16 G2	3Y24 D2	3Y34 C13	5Y00 G4	5Y11 H6	5Y19 B7	7Y03 G2	9Y05 G6	9Y15 G4	FY22 E3	FY30 G4	FY41 F7	FY48 A2	FY55 B14	FY62 C9	FY69 G9	FY76 G8	FY85 A5	
1M20 F8	1Y02 A10	1Y01 E3	1Y17 F4	1Y26 F8	1Y34 B15	2Y02 B2	2Y10 H3	2Y17 G6	2Y25 A13	2Y32 D13	2Y41 C9	2Y50 F13	3Y03 F1	3Y10 F6	3Y17 B13	3Y23 B5	3Y35 F13	5Y01 G6	5Y12 H6	5Y20 B7	7Y04 H2	9Y06 H6	9Y16 B5	FY23 E3	FY31 H3	FY42 F7	FY49 A13	FY56 A9	FY63 C8	FY70 G9	FY77 F8	FY86 E13	



Layout SSB (Top Side Overview)



Layout SSB Mapping (Top Side)

1000	A6	2357	B4	2780	B7	2925	B7	2E22	D8	2I98	B8	2P36	C2	2Y30	B9	3411	B4	3848	C6	3E16	E8	3IH9	A4	3PA2	D2	3V22	C9	5I05	A9	6I28	A5	7721	B7	9426	B5	9I49	A8
1001	B6	2358	B4	2781	B7	2926	A7	2E23	E8	2I99	A4	2P37	C2	2Y31	C9	3412	C4	3849	D5	3E37	E9	3IH8	A8	3PA3	C3	3V23	C9	5I06	A9	6I29	A5	7725	B6	9428	A5	9I51	A6
1304	A5	2359	B5	2782	B7	2927	A7	2E24	E8	2I9A	A2	2P38	C2	2Y32	D9	3413	B4	3850	B7	3E50	C8	3IH8	A8	3PA4	C3	3V24	C9	5I12	A8	6I30	A4	7770	C6	9700	D6	9I59	A7
1305	B5	2360	B5	2784	B7	2928	A7	2E25	E8	2I9A	A2	2P39	C2	2Y33	D9	3416	A4	3851	D5	3E52	C8	3IHC	A8	3PA5	C2	3V25	D8	5I13	A8	6I31	A4	7772	B8	9703	D5	9I60	A3
1306	B4	2361	B5	2785	B7	2929	D5	2E26	E8	2I9A	A4	2P40	C2	2Y37	F2	3418	B4	3853	C6	3E53	B8	3I4	A4	3PA6	C3	3V26	D8	5I21	A9	6I32	A4	7773	E6	9704	C7	9I61	A7
1307	B5	2362	B5	2787	B7	2931	D5	2E28	E8	2I9A	A9	2P41	C2	2Y38	F2	3422	B4	3854	C6	3E54	C8	3I0J	A3	3PA7	C3	3V27	D8	5I22	A9	6I33	A4	7774	B6	9705	C7	9I84	A8
1308	B4	2363	C5	2788	B7	2935	D5	2E29	E8	2I9A	A3	2P42	C2	2Y39	F2	3423	A4	3855	C6	3E59	D9	3I0J	A3	3PA8	C2	3V28	D8	5I30	A8	6I35	A5	7775	D5	9707	D5	9I85	B8
1401	A6	2364	A5	2790	B7	2936	C7	2E30	E8	2I9A	A3	2P43	C2	2Y40	F2	3433	A4	3856	A7	3E60	C8	3I0K	B8	3PA9	C3	3V29	D8	5I31	B9	6I36	A5	7776	C5	9708	C5	9I87	E1
1402	A6	2365	B4	2792	C5	2937	C7	2E32	E9	2I9A	A7	2P44	C2	2Y41	F2	3436	A4	3857	A7	3E61	C9	3I0K	A2	3PB0	C2	3V30	D8	5I32	B9	6I37	A2	7777	D5	9709	D5	9I89	E1
1408	A4	2367	B4	2794	B7	2938	C5	2E34	E8	2I9B	A8	2P48	C2	2Y42	F2	3437	B4	3858	A7	3E62	C8	3I0K	A3	3PB1	C2	3V31	D8	5I33	A9	6I38	A2	7A00	D4	9711	B8	9I90	E1
1702	D5	2368	B4	2795	B7	2939	E6	2E39	E9	2I9B	A8	2P50	B2	2Y43	F2	3439	B4	3859	A7	3E63	D8	3I08	A3	3PB2	C2	3V32	D8	5I34	A9	6I39	A3	7A01	D4	9713	C8	9I95	B3
1703	D5	2373	B4	2796	B7	2A00	E4	2E41	D9	2I9B	A9	2P80	B2	2Y44	F3	3442	C4	3860	A7	3E64	D9	3I0L	A7	3PB3	C2	3V33	D8	5I35	A8	6I40	A3	7A02	D4	9717	B6	9I97	B3
1710	D7	2376	B4	2797	B7	2A02	D5	2E42	C8	2I0C	A7	2P81	B3	2Y45	F3	3443	C4	3861	A7	3E73	B8	3I0L	A7	3PB4	C2	3V34	D8	5I36	B9	6I41	A3	7A03	D4	9718	B6	9IA1	A3
1D01	A8	2377	B4	2798	B7	2A03	E4	2E43	D9	2I0C	A7	2P90	B3	2Y51	F2	3444	B4	3864	D6	3E74	D8	3I0L	A7	3PB5	C3	3V35	E8	5I37	B8	6I42	A3	7A11	D3	9719	B7	9IA3	A2
1E02	B8	2379	B5	2799	B7	2A04	E4	2E50	D9	2I0C	A6	2P98	C1	2Z44	F5	3447	B4	3865	D6	3E77	C8	3I0M	A7	3PB6	C3	3V36	C8	5I38	B8	6I43	A4	7A12	D3	9720	B6	9IA6	A5
1E04	C8	2380	B5	2800	D5	2A05	D4	2E54	C9	2I0C	B9	2P99	C2	2Z45	F5	3448	C4	3867	C7	3E78	C8	3I0M	A7	3PB7	C2	3V39	C9	5I40	B9	6I44	A3	7A16	D3	9721	C7	9IA7	A5
1I01	A5	2381	B5	2802	A6	2A06	D4	2E56	C8	2I0C	A4	2PA4	C3	2Z46	F5	3449	C4	3868	C7	3E79	B8	3I0N	A7	3PB8	C2	3V50	E9	5I41	B8	6I45	A2	7A31	D5	9722	D5	9ID0	E3
1I04	A4	2382	B5	2805	B7	2A08	C4	2E57	C8	2I0E	A9	2PA5	C3	2Z47	F5	3460	B5	3869	D5	3E80	B8	3I0N	A7	3PB9	C2	3V51	E9	5I46	B3	6I46	A2	7A61	E4	9727	D7	9IF0	A7
1I05	A7	2383	A5	2809	A7	2A09	D5	2E58	C8	2I0E	B8	2PA6	C2	2Z48	F5	3461	B5	3870	E6	3E87	C8	3I0N	A4	3PC1	C2	3V52	E9	5I47	C3	6I47	A3	7A62	E4	9728	D7	9IF1	A7
1I07	A7	2388	B4	2810	C7	2A10	D4	2E59	C8	2I0E	A8	2PA7	C2	2Z49	F5	3462	B5	3874	E5	3E91	D8	3I0N	A4	3PC2	D3	3V53	E9	5I48	B9	6I48	A3	7A63	E4	9729	D6	9IF2	A7
1I09	A6	2389	C4	2811	C7	2A11	D4	2E62	C8	2I0E	A8	2PA8	C2	2Z50	F5	3472	C4	3875	D6	3I00	E3	3I0Q	A3	3PC3	D3	3V54	E9	5I49	B9	6I49	A3	7E01	D9	9730	B8	9IF3	A8
1I11	B3	2391	A4	2813	C7	2A12	D3	2E65	C8	2I0E	B9	2PB3	C3	2Z51	F5	3473	B4	3876	D7	3I19	A3	3I0Q	A3	3PC4	D3	3V55	E9	5I49	B9	6I50	A3	7E02	D8	9731	B7	9IF4	A8
1I53	A8	2393	C4	2814	B8	2A13	D3	2E66	C8	2I0E	B9	2PB4	C3	2Z52	F5	3474	C4	3877	C8	3I20	A3	3I0Q	B9	3PC6	C3	3V56	D8	5I13	C9	6I51	A4	7E06	B8	9732	B7	9P00	B1
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1I57	A8	2395	C5	2816	B7	2A15	D4	2E68	C8	2I0E	B9	2PB6	C3	2Z57	F5	3476	B4	3886	D7	3I22	A3	3I0R	B8	3PC8	C3	3Y04	C9	5I15	C9	6I53	A7	7E25	D9	9751	B7	9P02	B1
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1M51	F7	2413	A4	2835	C7	2A33	D5	2E87	D8	2I0G	B8	2PD2	D2	3024	C6	3720	D5	3915	C5	3I59	A5	3I0T	A6	3PE4	C2	3Z52	F5	5PA3	B3	6I90	A7	7I54	A8	9803	C6	9PA2	C3
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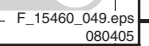
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Layout SSB Mapping (Bottom Side)

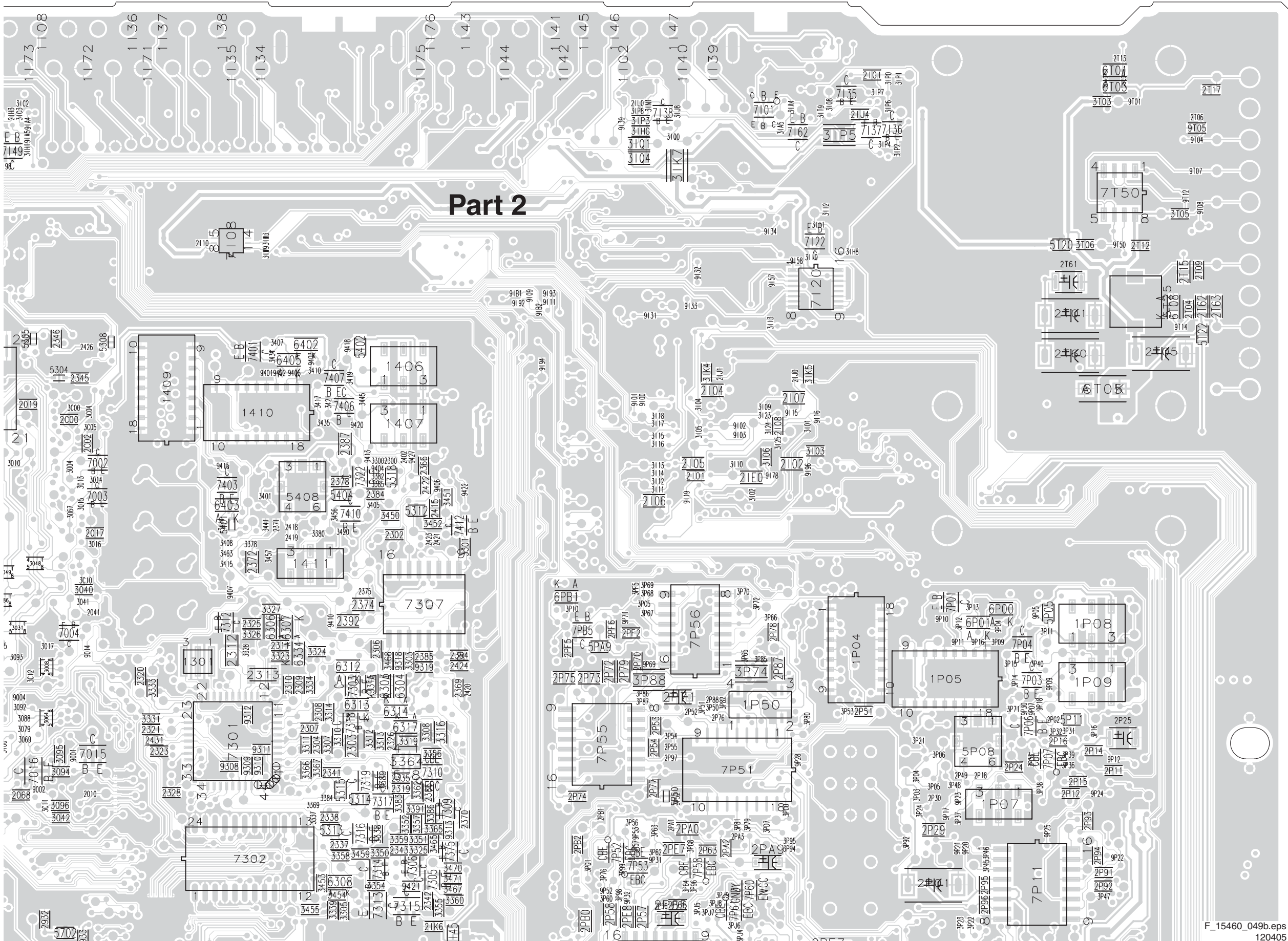
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1407	A6	2808	B4	2I40	F6	2PA3	C7	2Y53	D1	3360	C6	3918	B3	3IA8	A4	3IZ4	A2	3T10	E9	3Z56	E5	6I07	A3	7I13	E5	9422	B6	9ID1	A3
1409	A5	2812	B3	2I46	A2	2PA9	C8	2Z54	E5	3362	C6	3919	B3	3IA9	A4	3IZ5	A2	3T11	E9	5304	A5	6I08	A2	7I14	F6	9427	B6	9ID2	A3
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5



Layout SSB (Bottom Side Part 2)

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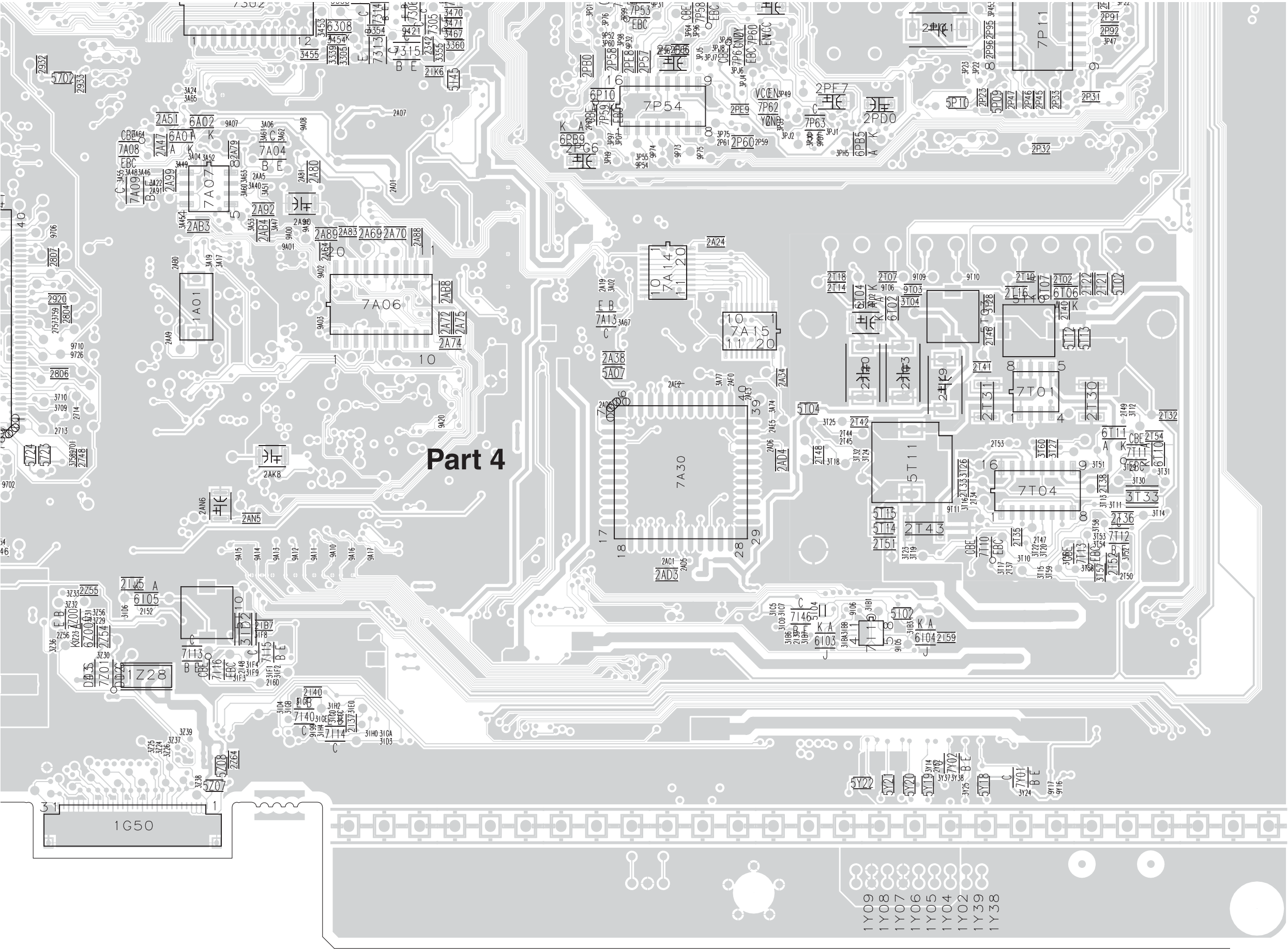


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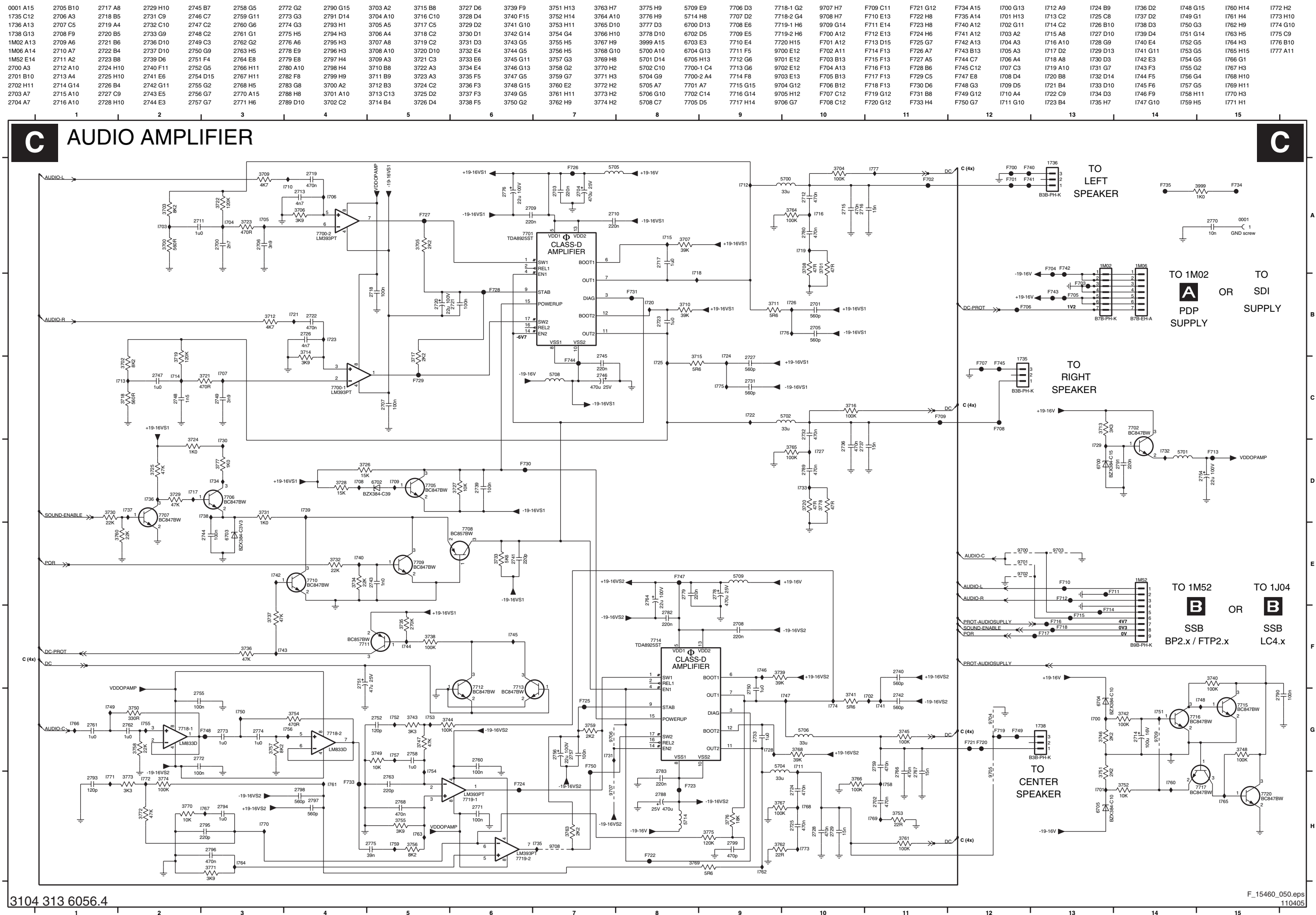
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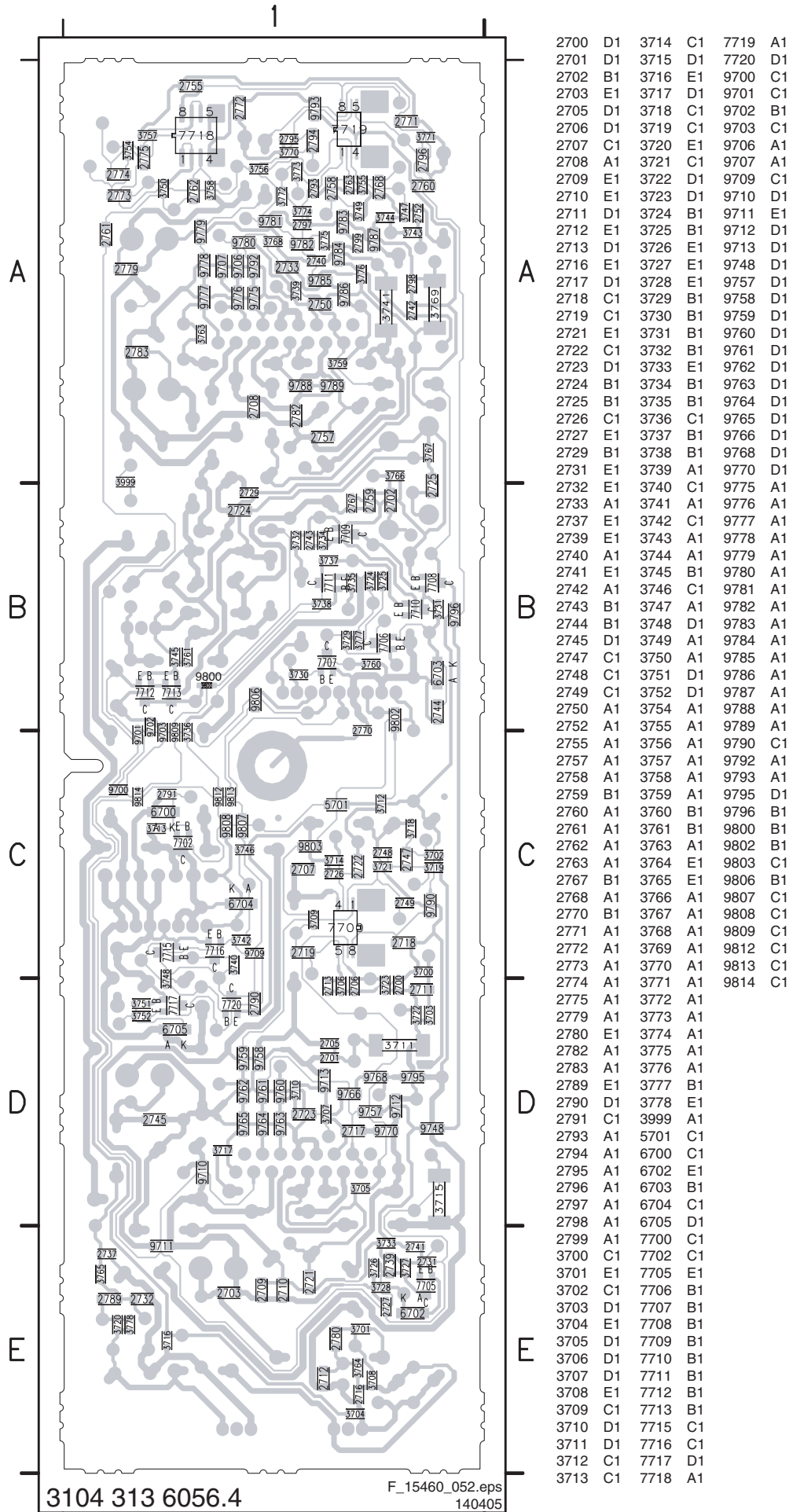
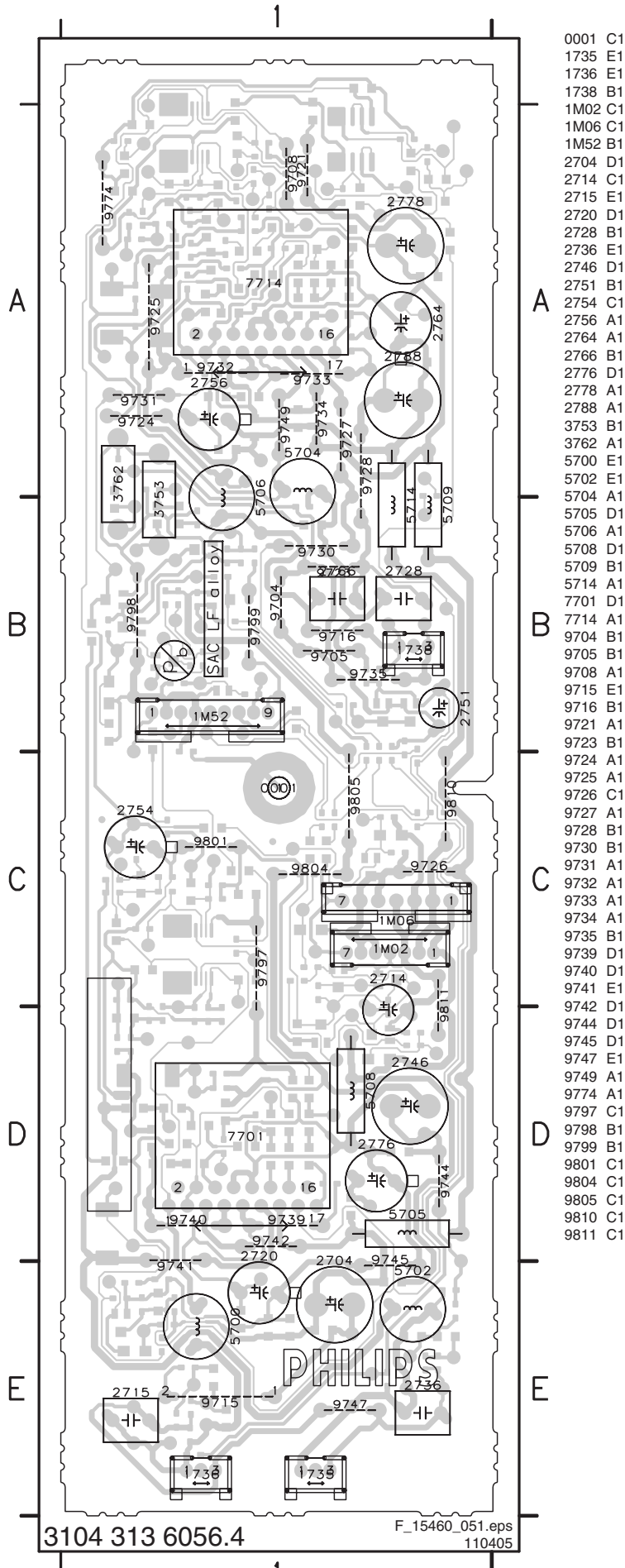


PDP Audio Amplifier

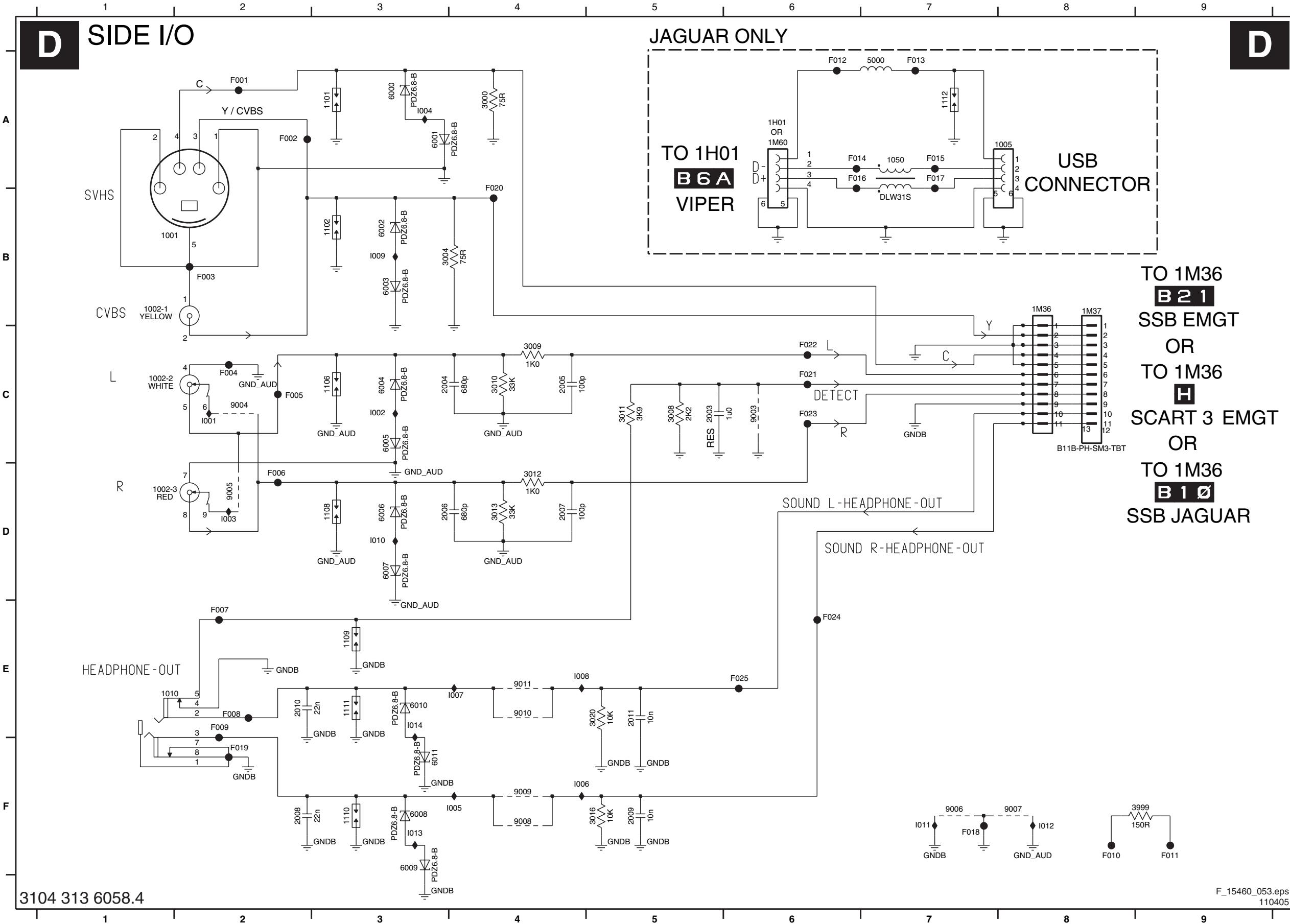


Layout PDP Audio Amplifier (Top Side)

Layout PDP Audio Amplifier (Bottom Side)



Side I/O Panel

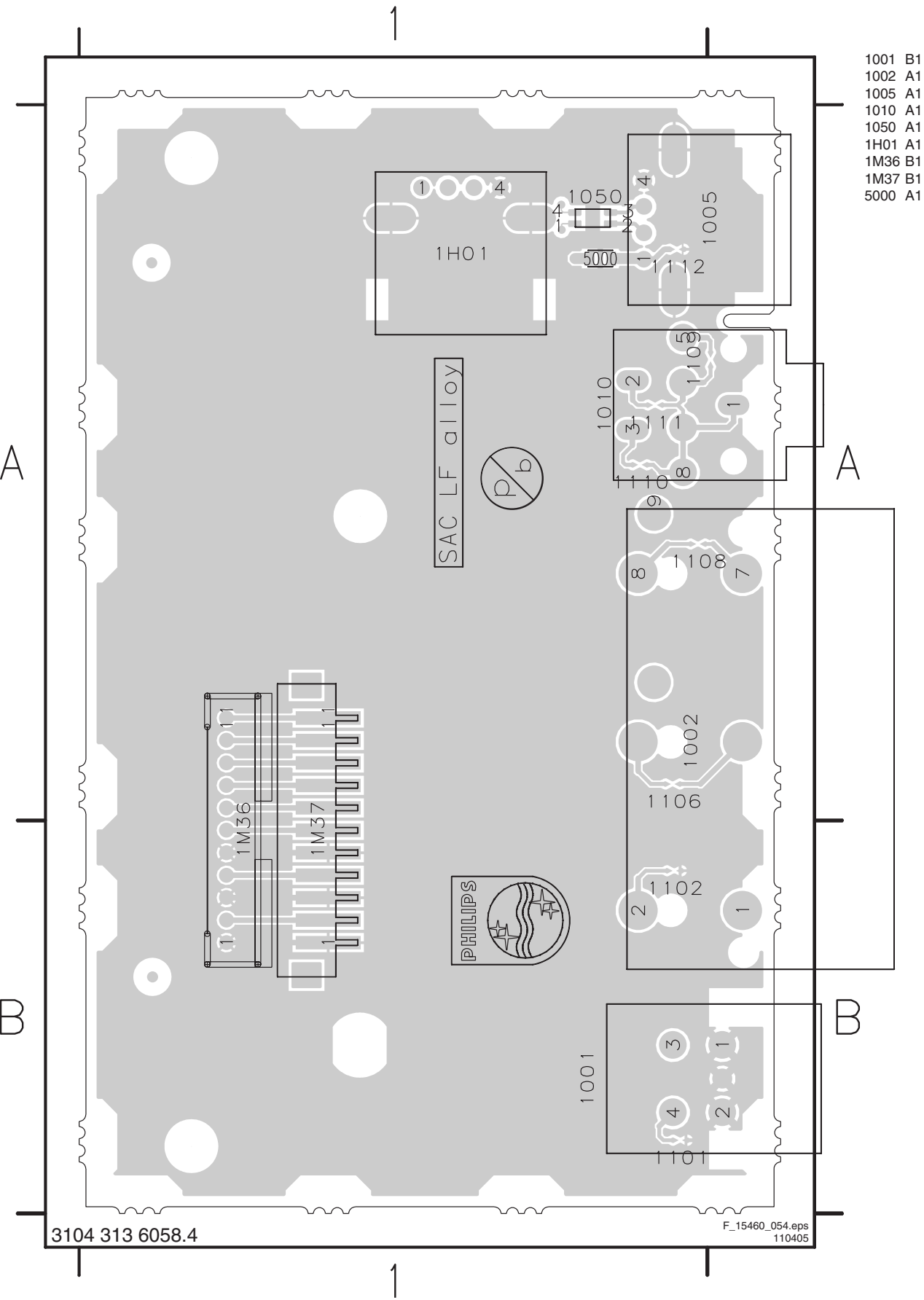


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1002-3 D1	F005 C2
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1050 A7	F008 E2
1101 A3	F009 E2
1102 B3	F010 F8
1106 C3	F011 F9
1108 D3	F012 A6
1109 E3	F013 A7
1110 F3	F014 A6
1111 E3	F015 A7
1112 A7	F016 A6
1H01 A6	F017 A7
1M36 B8	F018 F7
1M37 B8	F019 F2
2003 C5	F020 B4
2004 C3	F021 C6
2005 C4	F022 C6
2006 D3	F023 C6
2007 D4	F024 E6
2008 F2	F025 E6
2009 F5	I001 C2
2010 E2	I002 C3
2011 E5	I003 D2
3000 A4	I004 A3
3004 B3	I005 F4
3008 C5	I006 F4
3009 C4	I007 E4
3010 C4	I008 E4
3011 C5	I009 B3
3012 D4	I010 D3
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6000 A3	
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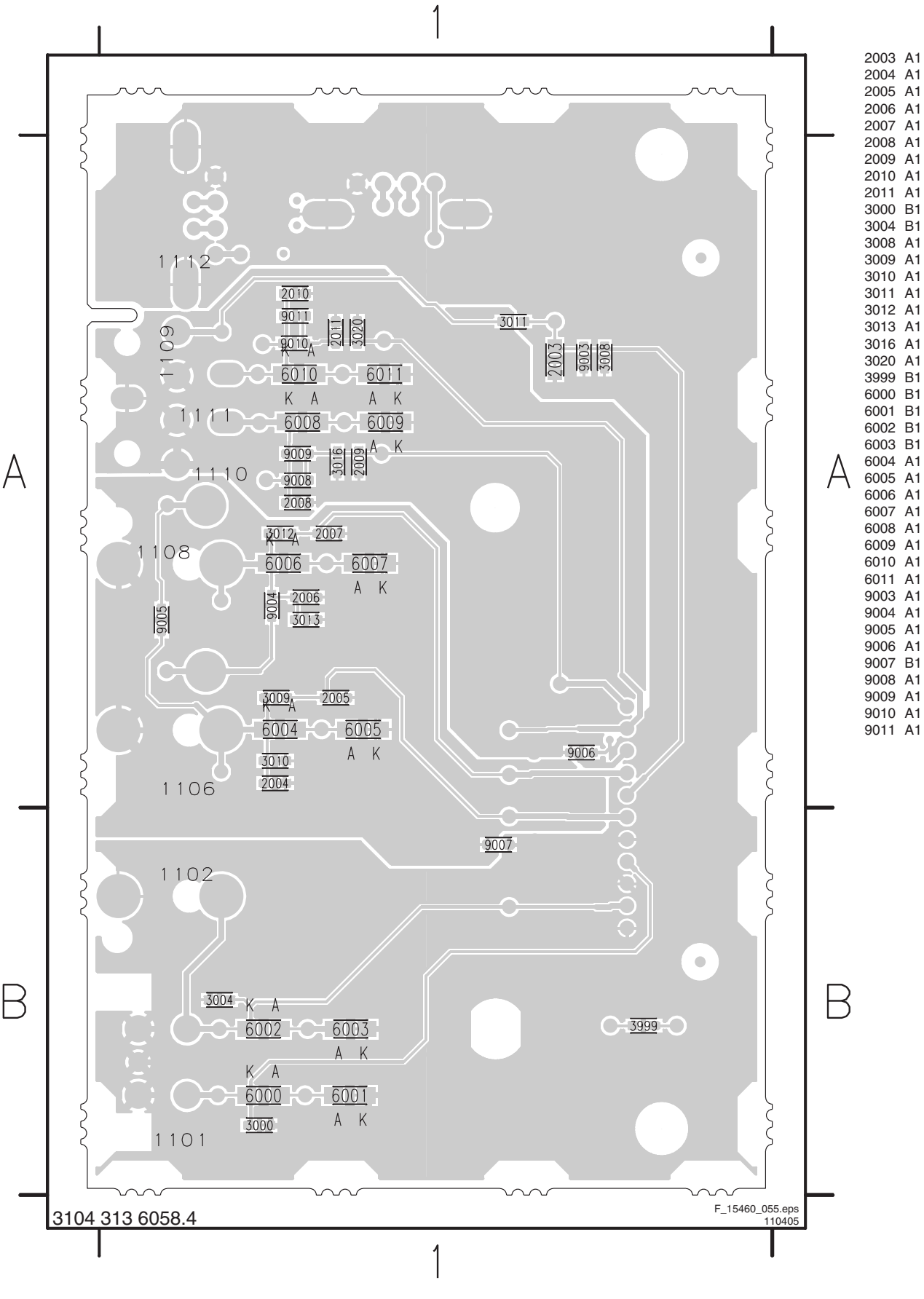
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Layout Side I/O Panel (Top Side)



Layout Side I/O Panel (Bottom Side)

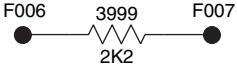
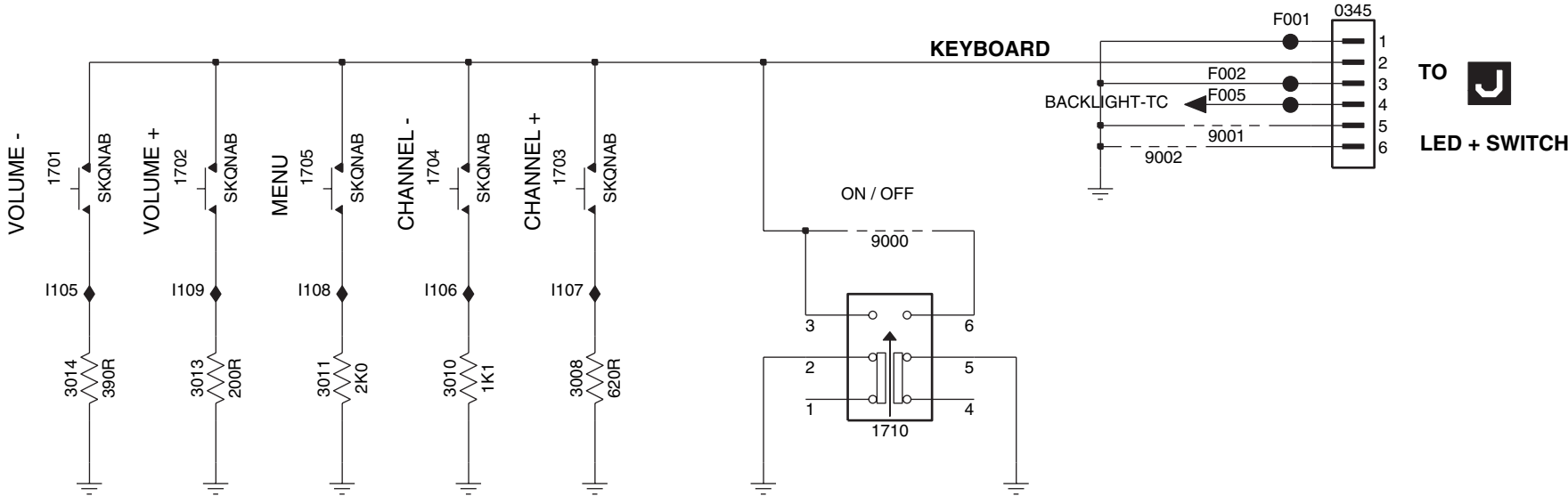
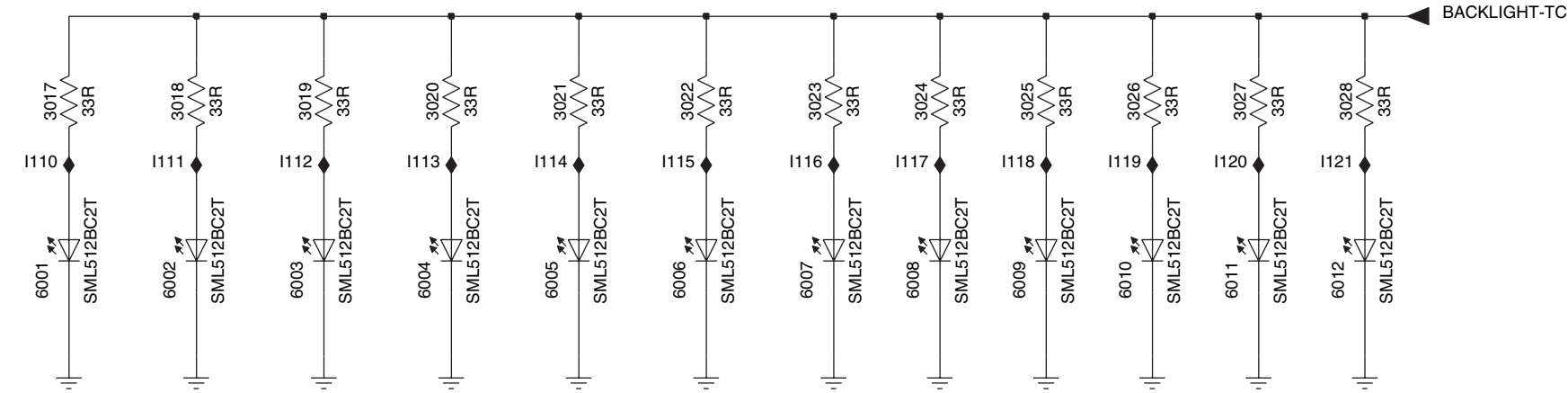


Top Control Panel

E TOP CONTROL

E

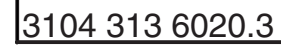
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- 9000 D4
- 9001 D5
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- F001 C5
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- F005 C5
- F006 E7
- F007 E7
- I105 D1
- I106 D2
- I107 D2
- I108 D2
- I109 D1
- I110 B1
- I111 B1
- I112 B2
- I113 B2
- I114 B2
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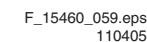
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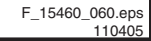
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H SCART 3

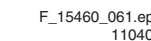


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1509 B2	F515 B13
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1514 E2	F520 E5
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9506 A12	

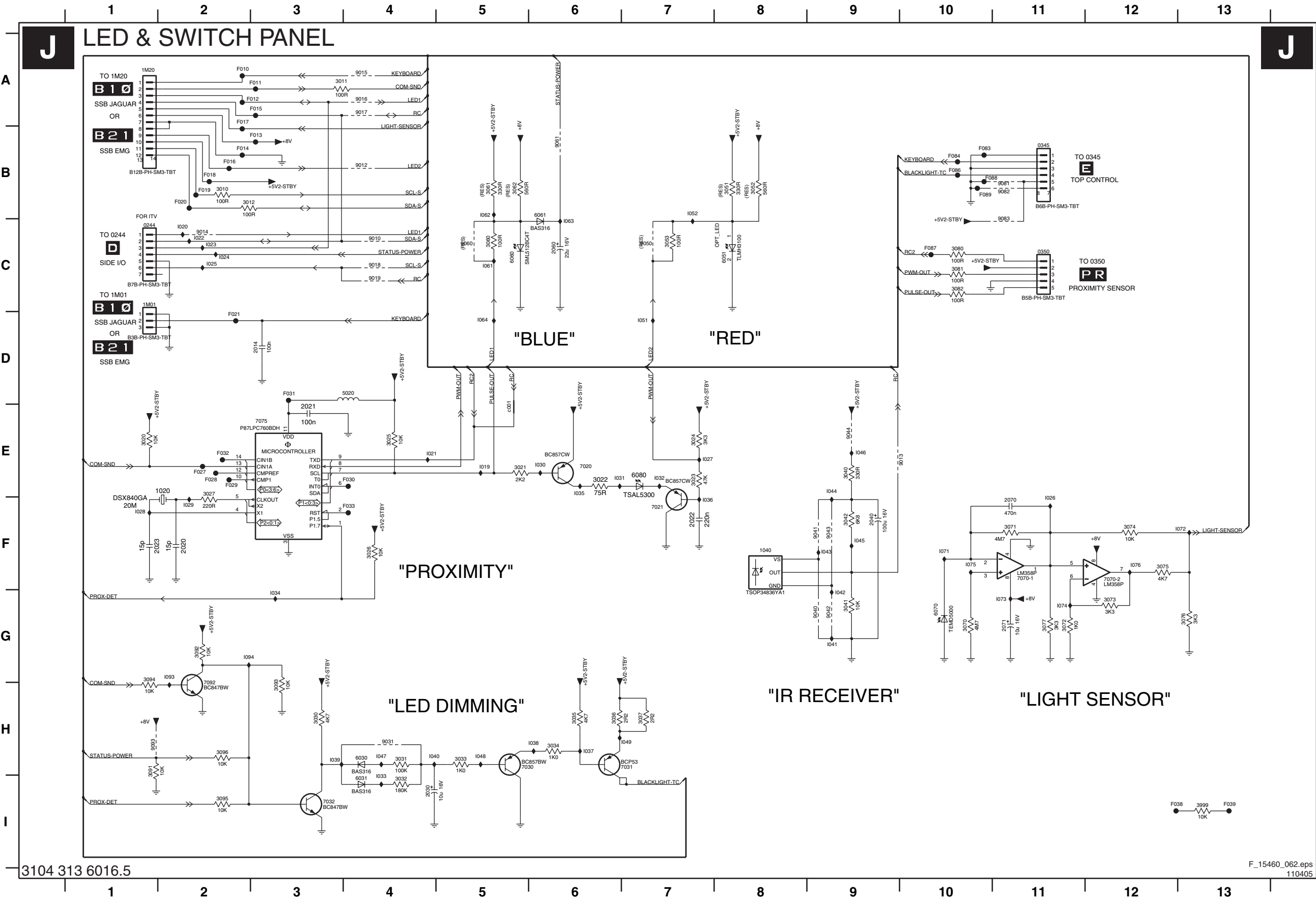
0244	A2	1003	A1	1005	A3	1M07	A1	1M36	A4	1M37	A3	9500	A3	9509	A3	9510	A3	9511	A4	9512	A1	9513	A2	9514	A1	9515	A3	9523	A2	9525	A4	9526	A4	9527	A4
------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----



2500	A4	2505	A1	2510	A2	2516	A1	2523	A3	3503	A4	3508	A3	3513	A4	3522	A2	3527	A1	3532	A3	3543	A3	6503	A4	6508	A4	9501	A2	9506	A3	9524	A2
2501	A4	2506	A1	2511	A1	2517	A1	2524	A3	3504	A4	3509	A3	3514	A4	3523	A1	3528	A1	3533	A3	3999	A1	6504	A1	7501	A1	9502	A2	9508	A3		
2502	A4	2507	A4	2512	A1	2520	A3	3500	A4	3505	A4	3510	A3	3515	A4	3524	A1	3529	A1	3534	A3	6500	A4	6505	A3	7502	A1	9503	A3	9516	A2		
2503	A4	2508	A4	2513	A1	2521	A3	3501	A4	3506	A4	3511	A4	3516	A4	3525	A1	3530	A3	3535	A1	6501	A4	6506	A3	7515	A2	9504	A3	9517	A2		
2504	A2	2509	A1	2515	A1	2522	A3	3502	A4	3507	A3	3512	A4	3517	A1	3526	A4	3531	A3	3536	A2	6502	A4	6507	A4	7516	A2	9505	A3	9521	A2		



LED and Switch Panel



0244 C1	F018 B2
0345 B11	F019 B2
0350 C11	F020 B2
1020 E2	F021 D2
1040 F8	F027 E2
1M01 C1	F028 E2
1M20 A1	F029 E2
2014 D3	F030 E4
2020 F2	F031 D3
2021 E3	F032 E2
2022 F7	F033 F4
2023 F1	F038 I12
2030 I4	F039 I13
2040 F9	F083 B10
2060 C6	F084 B10
2070 F11	F086 B10
2071 G11	F087 C10
3010 B2	F088 B10
3011 A3	F089 B10
3012 B2	I019 E5
3020 E1	I020 C2
3021 E5	I021 E4
3022 E6	I022 C2
3023 E7	I023 C2
3024 E7	I024 C2
3025 E4	I025 C2
3026 F4	I026 F11
3027 E2	I027 E7
3030 H3	I028 F1
3031 H4	I029 F2
3032 I4	I030 E6
3033 H5	I031 E6
3034 H6	I032 E7
3035 H6	I033 I4
3036 H6	I034 G3
3037 H7	I035 E6
3040 E9	I036 F7
3041 G9	I037 H6
3042 F9	I038 H6
3051 B8	I039 H3
3052 B8	I040 H4
3053 C7	I041 G9
3060 C5	I042 G9
3061 B5	I043 F9
3062 B5	I044 E9
3070 G10	I045 F9
3071 F11	I046 E9
3072 G11	I047 H4
3073 G12	I048 H5
3074 F12	I049 H7
3075 F12	I051 D7
3076 G13	I052 B7
3077 G11	I061 C5
3080 C10	I062 B5
3081 C10	I063 C6
3082 C10	I064 D5
3091 H1	I071 F10
3092 G2	I072 F13
3093 H3	I073 G11
3094 G1	I074 G11
3095 I2	I075 F10
3096 H2	I076 F12
3999 I13	I093 G2
6030 H4	I094 G2
6031 I4	c001 E5
6051 C8	
6060 C5	
6061 B6	
6070 G10	
6080 E7	
7020 E6	
7021 F7	
7030 H5	
7031 H6	
7032 I3	
7070-1 F11	
7070-2 F12	
7075 E3	
7092 H2	
9010 C4	
9012 B4	
9013 E9	
9014 C2	
9015 A4	
9016 A4	
9017 A4	
9018 C4	
9019 C4	
9040 G9	
9041 F9	
9042 G9	
9043 F9	
9044 E9	
9050 C7	
9060 C5	
9061 B6	
9081 B11	
9082 B11	
9083 C11	
9093 H1	
F010 A2	
F011 A3	
F012 A3	
F013 B3	
F014 B2	
F015 A3	
F016 B2	
F017 A2	

1



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[illegible]

8. Alignments

Index of this chapter:

- 8.1 General Alignment Conditions
- 8.2 Hardware Alignments
- 8.3 Software Alignments
- 8.4 Option Settings

8.1 General Alignment Conditions

8.1.1 Start Conditions

Perform all electrical adjustments under the following conditions:

- Power supply voltage (depends on region):
 - **AP-NTSC:** 120 V_{AC} or 230 V_{AC} / 50 Hz (± 10%).
 - **AP-PAL-multi:** 120 - 230 V_{AC} / 50 Hz (± 10%).
 - **EU:** 230 V_{AC} / 50 Hz (± 10%).
 - **LATAM-NTSC:** 120 - 230 V_{AC} / 50 Hz (± 10%).
 - **US:** 120 V_{AC} / 60 Hz (± 10%).
- Connect the set to the mains via an isolation transformer with low internal resistance.
- Allow the set to warm up for approximately 10 to 15 minutes.
- Measure voltages and waveforms in relation to chassis ground (with the exception of the voltages on the primary side of the power supply).
Caution: never use heatsinks as ground.
- Test probe: Ri > 10 Mohm, Ci < 20 pF.
- Use an isolated trimmer/screwdriver to perform alignments.

8.1.2 Initial Settings

Perform all electrical adjustments with the following initial settings (via the "Active Control" button on the RC):

1. To avoid the working of the light sensor, set "Active Control" to "Off".
2. Set "Smart Picture" to "Eco/Natural".
3. Set "Active Display" to "Off"

8.1.3 Alignment Sequence

- First, set the correct options:
 - In SAM, select SERVICE OPTIONS -> OPT. NO,
 - Fill in the option settings according to the set sticker (see also paragraph "Option Settings"),
 - Select STORE OPTIONS and push "OK" on the remote control,
 - After storing, the set must be restarted!
- Warming up (> 10 minutes).
- White point alignment.

8.2 Hardware Alignments

No hardware alignments are necessary.

8.3 Software Alignments

Put the set in SAM mode (see the "Service Modes, Error Codes and Fault Finding" section). The SAM menu will now appear on the screen. Select ALIGNMENTS and go to one of the sub menus. The alignments are explained below.

Notes:

- All changes must be stored manually.
- If an empty EAPROM (permanent memory) is detected, all settings are set to pre-programmed default values.

8.3.1 General

For the next alignments, supply the following test signals via a video generator to the RF input:

- **EU/AP-PAL** models: a PAL B/G TV-signal with a signal strength of at least 1 mV and a frequency of 475.25 MHz
- **US/AP-NTSC** models: an NTSC M/N TV-signal with a signal strength of at least 1 mV and a frequency of 61.25 MHz (channel 3).
- **LATAM** models: an NTSC M or PAL M TV-signal with a signal strength of at least 1 mV and a frequency of 61.25 MHz (channel 3).

Luma Gain

Fixed setting of "1".

Delta Luma Gain for Aux (only when a 2nd Tuner is present)

Fixed setting of "0 dB".

IF AFC

Alignment procedure:

1. During the IF AFC-parameter adjustment, one can see OSD feedback on the screen.
2. The OSD feedback can give four kinds of messages:
3. The first item ("IN/OUT") informs you whether you are in or out of the AFC-window.
4. The second item ("HIGH/LOW") informs you whether the AFC-frequency is too high or too low.

Table 8-1 AFC

AFC-window	AFC-frequency vs. reference
Out	High
In	High
[In]	[Low]
Out	Low

1. Adjust the IF AFC parameter until the **first** value is within the AFC window (= IN).
2. Next, adjust the IF AFC parameter until the **second** value is LOW.

IF LPRIME AFC (only for EU sets)

Same procedure as described above, but with SECAM L/L' signal source.

Tuner AGC

Measure the DC voltage on pin 1 of the (main) Tuner. You can adjust this voltage by adjusting the TUNER AGC item in the SAM menu. Alignment is correct when the DC voltage is just below 3.5 V.

IF AFC Tuner 2 (only when a 2nd Tuner is present)

Use the same procedure as described above (under IF AFC) with the set switched to the DW source.

IF LPRIME AFC Tuner 2 (only when a 2nd Tuner is present)

Use the same procedure as described above (under IF LPRIME AFC) with the set switched to the DW source.

Tuner AGC Tuner 2 (only when a 2nd Tuner is present)

Use the same procedure as described above (under TUNER AGC) with the set switched to the DW source. Measure on pin 1 of the DW Tuner.

Blend Intensity

Use this alignment when you replace the microcontroller, NVM, or the EBILD. It aligns the level of transparency of the menu-picture blended into the main-picture. Fixed setting of "16".

8.3.2 2FH ADC Alignment

Only necessary to align, when the A/D converter or NVM is replaced. Use the default values as mentioned in the table.

Table 8-2 "2fH ADC alignment"

Menu item	Value
Red Gain RGB	106
Blue Gain RGB	112
Green Gain RGB	133
Red Offset RGB	40
Blue Offset RGB	41
Green Offset RGB	43
Red Gain YPbPr *	115
Blue Gain YPbPr *	118
Green Gain YPbPr *	102
Red Offset YPbPr *	59
Blue Offset YPbPr *	56
Green Offset YPbPr *	35
* = only for sets with YPbPr input	

8.3.3 White Point

- Set ACTIVE CONTROL to "Off".
- In the TV -> PICTURE user menu set:
 - DYNAMIC CONTRAST to "Off".
 - COLOUR ENHANCEMENT to "Off".
 - DNR to "Off".
 - DIGITAL OPTIONS to "Pixel Plus 2".
 - CONTRAST to "100".
- Go to the SAM and select ALIGNMENTS -> WHITE POINT.

Method 1 (with colour analyser):

- Use a 100% white screen as input signal and set the following values:
 - COLOR TEMPERATURE: "Tint to be aligned".
 - WHITE POINT RED: "127".
 - WHITE POINT GREEN: "127".
 - WHITE POINT BLUE: "127".
 - RED BL OFFSET: "7".
 - GREEN BL OFFSET: "7".
- Measure with a calibrated (phosphor- independent) colour analyser (e.g. Minolta CA-210) in the centre of the screen. This measurement needs to be done in a dark environment.
- Cut off alignment:** Adjust, by means of changing the value of one or both OFFSET's, to the correct x,y coordinates for the tint "NORMAL" (see table "White D alignment values"). Tolerance: dx,dy: ± 0.004 .
- White point alignment:** Adjust by means of decreasing the value of one or two white points, the correct x,y coordinates (see table "White D alignment values"). Tolerance: dx,dy: ± 0.004 .
- Repeat this step for the other Colour Temperatures that need to be aligned.
- When finished press "Store" to store the aligned values to the NVM.

Table 8-3 White D alignment values

Colour Temp.	Cool	Normal	Warm
X	0.275	0.286	0.315
Y	0.291	0.301	0.335

Method 2 (without colour analyser):

If you do not have a colour analyser, you can use the default values. This is the next best solution. The default values are average values coming from production (statistics).

- Select a COLOUR TEMPERATURE (e.g. COOL, NORMAL, or WARM).
- Set the RED, GREEN and BLUE default values according to the values in the "Tint settings" table.
- When finished press "Store" to store the aligned values to the NVM.

Table 8-4 Tint settings

	Cool		Normal		Warm	
	42"	50"	42"	50"	42"	50"
R	127	127	127	127	127	127
G	122	125	119	121	113	114
B	118	118	111	109	94	87

8.3.4 Lum. Del.

With this Luminance Delay alignment, you place the luminance information exactly on the chrominance information (brightness is pushed onto the colour). Use a colour bar / grey scale pattern as test signal.

- LUM. DELAY PAL BG:** Apply a PAL BG colour bar / grey scale pattern as a test signal. Adjust this parameter until the transients of the colour part and black and white part of the test pattern are at the same position. Default value is "7".
- LUM. DELAY PAL I:** Apply a PAL I colour bar/grey scale pattern as a test signal. Adjust this parameter until the transients of the colour part and black and white part of the test pattern are at the same position. Default value is "9".
- LUM. DELAY SECAM:** Apply a SECAM colour bar/grey scale pattern as a test signal. Adjust this parameter until the transients of the colour part and black and white part of the test pattern are at the same position. Default value is "9".
- LUM. DELAY BYPASS:** apply a NTSC colour bar/grey scale pattern as a test signal. Adjust this value until the transients of the colour and black and white part of the test area are at the same position. Default value is "6".

8.4 Option Settings**8.4.1 Introduction**

The microprocessor communicates with a large number of I²C ICs in the set. To ensure good communication and to make digital diagnosis possible, the microprocessor has to know which ICs to address. The presence / absence of these specific ICs (or functions) is made known by the option codes.

Notes:

- After changing the option(s), save them with the STORE command.
- The new option setting is only active after the TV is switched "off" and "on" again with the Mains switch (the EARM is then read again).

8.4.2 Dealer Options

Table 8-5 Dealer options

Menu name	Subjects	Options	Description
Personal Options	Picture Mute	Yes	Picture (blue) mute active in case no picture detected
		No	Noise in case of no picture detected
	Virgin Mode	Yes	TV starts up (once) with language selection menu after mains switch "on" for the first time (virgin mode)
		No	TV does not starts up (once) with language selection menu after mains switch "on" for the first time (virgin mode)
	Auto Store Mode (only valid for EU and AP-PAL sets)	None	Autostore mode disabled (not in installation menu)
		PDC-VPS	Autostore mode via ATS (PDC/VPS) enabled
		TXT page	Autostore mode via ACI enabled
		PDC-VPS-TXT	Autostore mode via ACI or ATS enabled
	TXT Preference (only valid for EU and AP-PAL sets)	TOP	Preference to TOP Teletext
		FLOF	Preference to FLOF Teletext
	DVD door lock (only valid for sets with integrated DVD)	Yes	To disable the DVD tray opening function
		No	To enable the DVD tray opening function
	AmbiLight Demo	Yes	AmbiLight demo via "MENU" button enabled
		No	AmbiLight demo via "MENU" button disabled

8.4.3 Service Options

Select the sub menu's to set the initialisation codes (options) of the set via text menus.

Table 8-6 Service options

Menu-item	Subjects	Options	Description
Dual Screen	PIP/Dual Screen	Yes / No	Feature present / not present
	Text/EPG	Yes / No	Feature present / not present
	DS/PIP Tuner	Yes / No	Feature present / not present (only selectable if Dual Screen option is "on")
Teletext	Flash RAM (if present)	Yes / No	Flash RAM present / not present
	NextView type	None	Feature not present
		Textguide only	Feature present, but only as text guide
		Nextview 2c3	Feature present, for countries that support NextView
Display	Screen	Value "000"	42 inch PDP SDI
		Value "001"	50 inch PDP SDI
		Value "002"	42 inch PDP FHP
		Value "003"	30 inch LCD LPL
		Value "004"	37 inch LCD LPL
		Value "005"	42 inch LCD LPL
		Value "006"	32 inch LCD Sharp
		Value "007"	42 inch PDP SDI VGA
Video Repro	Feature box type	1050i/1250i	HD input
		Eagle 1B	"Eagle version 1B" present (Pixel Plus 1)
		Eagle 1C	"Eagle version 1C" present (Pixel Plus 2)
	Lightsensor	Yes / No	Feature present / not present
	3D Comb filter	Yes / No	Only selectable when Columbus is present
	Impr. Noise Red.	Yes / No	Only selectable when Columbus is present
	Pixel Plus Version	1	Standard PP: only selectable with Eagle 1C
		2	Improved PP: only selectable with Eagle 1C
Source Selection	720p	Yes / No	Enable for high resolution displays
Source Selection	EXT3 1Fh (2003)	Yes / No	Not selectable
Audio Repro	Acoustic System	FTV Top	Cabinet design (xxPF9986 and xxPF9996 with NXT)
		Soft Wrap	Cabinet design (xxPF9956 and xxPF9966 stdrd)
		Wrap	Cabinet design (xxPF9956 and xxPF9966 stdrd)
		FTV2.3	Cabinet design (for future)
Miscellaneous	AVL	On / Off	Enable / disable Automatic Volume Limiter
	Home Cinema	Yes / No	Model with / without Home Cinema Link (EU only)
	Dimming Backlight	Yes / No	Enable / disable dimming backlight (not implemented yet)
	Integrated RC	Yes / No	Control peripheral equipment via TV IR receiver (EU only)
	Tuner type	UV1316 / TEDE9	Model with Philips tuner / Alps tuner
	P50 DVD menu line	Yes / No	Enable / disable DVD control via user menu with TV RC (EU only)
	Hotel Mode	Yes / No	Enable / disable hotel mode
Option no.	Group 1		Group 1 option code overview (see set sticker)
	Group 2		Group 2 option code overview (see set sticker)

8.4.4 Opt. No. (Option numbers)

Select this sub menu to set all options at once (expressed in two long strings of numbers).

Table 8-7 Option number overview (subject to change)

Model Number	12 NC	Options Group 1	Options Group 2
42PF9966/12	8670 000 20646	62708 40992 49472 00000	05142 01537 00064 00065
42PF9966/10	8670 000 21597	62708 40992 49472 00000	05142 01537 00064 00065
50PF9966/12	8670 000 20653	62708 40992 49472 00000	04118 00513 00064 00065
50PF9966/10	8670 000 21598	62708 40992 49472 00000	05142 01537 00064 00065

An option number (or "option byte") represents a number of different options. When you change these numbers directly, you can set all options very quickly. All options are controlled via eight option numbers.

When the EAROM is replaced, all options will require resetting. To be certain that the factory settings are reproduced exactly, you must set both option number lines. You can find the correct option numbers on a sticker inside the TV set.

Example: The options sticker gives the following option numbers:

- 62708 40992 49472 00000
- 04118 00513 00064 00065

The first line (group 1) indicates hardware options 1 to 4, the second line (group 2) indicates software options 5 to 8. Every 5-digit number represents 16 bits (so the maximum value will be 65536 if all options are set).

When all the correct options are set, the sum of the decimal values of each Option Byte (OB) will give the option number. See next table for the option overview.

Table 8-8 Option overview

Byte	Bit (dec. value)	Subject	Options	Settings (in decimal values)	Remarks
1	0 (1)	Video Repro	Feature Box Type	3= Eagle 1B, 4= Eagle 1C, 5= 1050i/1250i	
	1 (2)				
	2 (4)				
	3 (8)	Personal	Ambi Light Demo	0= Off, 8= On	
	4 (16)	Video Repro	Auto Scavem	0= No, 16= Yes	Only selectable for CRT sets.
	5 (32)		Improv. Noise Reduction	0= No, 32= Yes	Fixed to "Yes" in case Columbus is present
	6 (64)		Light Sensor	0= No, 64= Yes	
	7 (128)	Miscellaneous	Ambi Light	0= No, 128= Yes	
	8 (256)	Video Repro	Digital Option	0 (No)= Dig. Natural Motion (for PP1) or PixelPlus (for PP2), 256 (Yes)= PixelPlus (for PP1) or PixelPlus2 (for PP2)	This depends on the "Pixel Plus Version" option (see also Byte 1 - bit 14), and gives the info that is visible in the user menu.
	9 (512)		n.a.		
	10 (1024)	Source Selection	1152i	0= Off, 1024= On	
	11 (2048)	Video Repro	n.a.		
	12 (4096)		Signalling Bits	0= No, 4096= Yes	Fixed to: "Yes" in EU and AP-P, "No" for other versions.
	13 (8192)		3D Comb Filter	0= No (2D Comb), 8192= Yes (3D Comb)	
	14 (16384)		PP (Pixel Plus) Version	0= "1", 16384= "2"	Only selectable when "Feature Box" option is "Eagle 1C". See also Byte 1- bit 8 "Digital Option".
	15 (32768)		720p	0= No, 32768= Yes	
2	0 (1)	Audio Repro	n.a.		
	1 (2)		Dolby Pro Logic	0= No, 2= Yes	
	2 (4)		Virtual Rear Speakers	0= No, 4= Yes	Fixed to: "Yes" for sets with Dolby Pro Logic.
	3 (8)		Cordless Rear Speakers	0= No, 8= Yes	Fixed to: "No" for all versions, except for EU.
	4 (16)		Dolby Digital	0= No, 16= Yes	When Dolby Digital is "Yes", the AVL (Byte 8 - bit 6) option must be "No".
	5 (32)		Virtual Dolby	0= No, 32= Yes	Fixed to: "No" in case the "Dolby Pro Logic" option (Byte 2 - Bit 1) unequals "none".
	6 (64)		Subwoofer	0= No Subwoofer present, 64= Subwoofer present.	
	7 (128)				
	8 (256)	Chassis/Region	Chassis	0= EM6, 256= EM5, 512 = EM3	FTx2.x= EM6
	9 (512)				
	10 (1024)				
	11 (2048)				
	12 (4096)	Teletext	n.a.		
	13 (8192)		Flash RAM	0= No, 8192= Yes	NexTV type 2C3 and 2 need a Flash RAM.
	14 (16384)		NexTV type	0= None, 16384= Textguide only, 32768= NexTV type 2C3, 49152= NexTV type 2	Only available for EU.
	15 (32768)				
3	0 (1)	n.a.	n.a.		
	1 (2)	n.a.	n.a.		
	2 (4)	n.a.	n.a.		
	3 (8)	n.a.	n.a.		
	4 (16)	Dual Screen	PIP/Dual Screen	0= No, 16= Yes	
	5 (32)		n.a.		
	6 (64)		TXT/EPG Dual Screen	0= No, 64= Yes.	Fixed to: "Off" for AP-N, US, and LA versions.
	7 (128)		n.a.		
	8 (256)	Display	CRT type (Aspect Ratio)	0= 4:3, 256= 16:9	
	9 (512)		Picture Rotation	0= No, 512= Yes	Only selectable for CRT sets.
	10 (1024)		Monitor	0= No, 1024= Yes	Reserved for Flat TV monitor.
	11 (2048)	Miscellaneous	Integrated Radio	0= No, 2048= Yes	
	12 (4096)		Stand Alone	0= No, 4096= Yes	Reserved for Flat TV monitor.
	13 (8192)		Integrated DVD	0= No, 8192= Yes	
	14 (16384)		Home Cinema	0= No, 16384= Yes	Fixed to: "No" in all versions except for EU.
	15 (32768)		Integrated RC	0= No, 32768= Yes	Fixed to: "No" in all versions except for EU.
4	0 (1)	Dual Screen	DS/PIP (Aux) Tuner	0= Aux Tuner not present, 1= Aux Tuner present	Only selectable in the EU version, provided the "PIP/Dual Screen" option is "Yes".
	1 (2)		DS/PIP (Aux) Tuner Type	0= UV1316, 2= TEDE9	
	2 (4)	Miscellaneous	38.0 (or China) IF	0= No, 4= Yes	Fixed to: "No" in all versions except for AP-P.
	3 (8)		Tuner Type	0= UV1316, 8= TEDE9	
	4 (16)	Teletext	n.a.		
	5 (32)		n.a.		
	6 (64)		n.a.		
	7 (128)		n.a.		
	8 (256)	Miscellaneous	Integrated Dig. Module	0= No, 256= Yes	
	9 (512)		Integrated HDD	0= No, 512= Yes	
	10 (1024)		n.a.		
	11 (2048)		n.a.		
	12 (4096)		Anti Aging	0= No, 4096= Yes	Fixed to: "Yes" for FTV.
	13 (8192)	Personal	DVD Door Lock	0= No, 8192= Yes	
	14 (16384)		n.a.		
	15 (32768)		n.a.		

Byte	Bit (dec. value)	Subject	Options	Settings (in decimal values)	Remarks
5	0 (1)	Personal	n.a.		
	1 (2)		Auto Store Mode	0= None, 2= PDC/VPS, 4= TXT Page, 6= PDC/VPS/TXT Page	Fixed to: "None" in the AP-N and US versions.
	2 (4)				
	3 (8)		2CS Korea	0= BTSC, 8= Korean Stereo	As the MSP can not automatically detect if Korean stereo (2CS) or BTSC is transmitted, this option is needed to tell the MSP what detection should be done.
	4 (16)		Blue (or Picture) Mute	0= No, 16= Yes	
	5 (32)		n.a.		
	6 (64)		Virgin Mode	0= No, 64= Yes	
	7 (128)	Miscellaneous	Hotel Mode	0= No, 128= Yes	
	8 (256)	Personal	Flex TV Demo	0= No, 256= Yes	
	9 (512)		n.a.		
	10 (1024)		n.a.		
	11 (2048)		n.a.		
	12 (4096)		TXT Preference	0= Top, 4096= FLOF	Only available in the EU version.
	13 (8192)		n.a.		
	14 (16384)		n.a.		
	15 (32768)		n.a.		
6	0 (1)	Miscellaneous	P50 DVD Menu Line	0= No, 1= Yes	Fixed to: "No" in all versions except for EU.
	1 (2)		n.a.		
	2 (4)		n.a.		
	3 (8)		n.a.		
	4 (16)	Chassis/Region	Region	0= EU, 16= AP-P, 32= AP-N, 48= US, 64= Latam, 80= Australia	
	5 (32)				
	6 (64)				
	7 (128)				
	8 (256)	Display	Screen	"000" (0)= 42-inch PDP (SDI), "001" (256)= 50-inch PDP (SDI), "002" (512)= 42-inch PDP (FHP), "003" (768)= 30-inch LCD (LPL), , , "004" (1024)= 37-inch LCD (LPL), "005" (1280)= 42-inch LCD (LPL), "006" (1536)= 32-inch LCD (Sharp), "007" (1792)= 42-inch PDP (SDI) VGA, "008" (2048)= 37-inch PDP (FHP).	Fixed to "0" in case of CRT.
	9 (512)				
	10 (1024)				
	11 (2048)				
	12 (4096)				
	13 (8192)				
	14 (16384)				
	15 (32768)				
7	0 (1)	Source Selection	EXT4 1fH	0= No, 1= Yes	
	1 (2)		EXT1 2fH	0= No, 2= Yes	
	2 (4)		n.a.		
	3 (8)		n.a.		
	4 (16)		n.a.		
	5 (32)		EXT3 1fH	0= No, 32= Yes	
	6 (64)		DVI/VGA	0= No, 64= Yes	
	7 (128)		HDMI (Europe)	0= No, 128= Yes	
	8 (256)		AV3 1fH	0= No, 256= Yes	
	9 (512)		AV1 2fH	0= No, 512= Yes	
	10 (1024)		AV2 2fH	0= No, 1024= Yes	
	11 (2048)		n.a.		
	12 (4096)		n.a.		
	13 (8192)		n.a.		
	14 (16384)		n.a.		
	15 (32768)		HDMI (Non- Europe)	0= No, 32768= Yes	
8	0 (1)	Audio Repro	Acoustic System	0= FTV-Top (499), 1= Soft Wrap (496, 498), 2= Wrap (496, 498), 3= FTV2.3 (505), 4= FL9 Monitor (n.a.), 5= FL10 (n.a.), 6= FL11 or FL11-upgr. (380, 382, 406, 425, 426, 534), 7= FL12 (296, 305, 395, 408, 428, 444), 8= FL14 (n.a.), 9= PV02 (462), 10= FL13A (456), 11= Soft Design Line (336, 383), 12= Tech Design Line (419), 14= FL13B (456), 15= Others	Used for setting dynamic audio parameters. Between brackets the styling numbers are mentioned as listed in the quarterly Product Survey.
	1 (2)				
	2 (4)				
	3 (8)				
	4 (16)	Miscellaneous	n.a.		
	5 (32)		Intelligent Lights	0= No, 32= Yes	
	6 (64)	Audio Repro	AVL	0= No, 64= Yes	Switch to "No" when Dolby Digital is present.
	7 (128)		1080i Screen	0= 2fH path, 128= 3fH path	
	8 (256)	Display	CRT Size	0= 28", 256= 32", 512= 36" MEC, 768= 29", 1024= 34", 1280= 38", 1536= 28" Mk2, 1792= 36" PH, 2048= 32" MEC, 2304= 32" PH, 2560= 30", 2816= 37", 3072= 42", 3328= 50", 3840= Others	
	9 (512)				
	10 (1024)				
	11 (2048)				
	12 (4096)		Anti Moire Filter	0= No, 4096= Yes	Only for CRT
	13 (8192)		Display Type	0= LCD (LPL), 8192= PDP, 16384= CRT, 24576= LCoS, 32768= PTV, 40960= LCD (AUO), 49152= LCD (Sharp)	
	14 (16384)				
	15 (32768)				

9. Circuit Descriptions, Abbreviation List, and IC Data Sheets

Index of this chapter:

9.1 Introduction

9.2 Abbreviation List

Note:

Only **new** (not recently published) circuits are described here. As this chassis does not contain any really new circuits, use the FTP2.2x manual for the circuit descriptions.

9.1 Introduction

This chassis contains, compared to its predecessor, the following **new/changed** features/components:

- **Small Signal Board (SSB).** Small layout changes and new software to support the 720p feature.
- **Dual Ambient Light inverter panels:** To reduce the heat dissipation and improve the efficiency, two separate CCFL inverter panels are introduced in some models.

The chassis consists of a full sized SSB, a Power Supply, and some smaller PWBs for Audio, I/O, and Control functions. The main functionalities are:

- **Power Supply:**
 - For **FHP** displays, this is an LLC power supply, based on the one used in the earlier plasma monitors (FMxx chassis). This supply (single sided) is built up very conventional, with hardly any surface mounted components on the copper side.
 - For **SDI** displays, this is a "black box" for Service (board/module swap).
- **SSB:** Core TV functionalities, being TXT/control, video and audio decoding, feature box, video featurig, and sync/geometry control. The SSB is a high tech module (four layer, 2 sides reflow technology, full SMC) with very high component density and full shielding for EMC-reasons. Despite this, it is designed in such a way, that repair on component level is possible. To achieve this, attention was paid to:
 - Clearance around surface mounted ICs (for replacing).
 - Detailed diagnostics and fault finding is possible via ComPair.
 - Software upgrading (only for main software) is possible via ComPair.

9.2 Abbreviation List

1080i	1080 visible lines, interlaced
1080p	1080 visible lines, progressive scan
2DNR	Spatial (2D) Noise Reduction
3DNR	Temporal (3D) Noise Reduction
AARA	Automatic Aspect Ratio Adaptation: algorithm that adapts aspect ratio to remove horizontal black bars; keeping up the original aspect ratio
	Automatic Channel Installation: algorithm that installs TV sets directly from cable network by means of a predefined TXT page
ACI	Analogue to Digital Converter
ADC	Automatic Frequency Control: control signal used to tune to the correct frequency
AFC	Automatic Gain Control: algorithm that controls the video input of the feature-box
AGC	Amplitude Modulation
AM	Automatic Noise Reduction: one of the algorithms of Auto TV
ANR	Aspect Ratio: 4 by 3 or 16 by 9
AR	See OTC 2.5: main processor
Artistic	Auto Screen Fit: algorithm that adapts aspect ratio to remove horizontal black bars but without throwing away video information
ASF	See Auto TV
ATV	Audio Centre
AUDIO_C	Audio Left
AUDIO_L	Audio Right
AUDIO_R	Audio Surround Left
AUDIO_SL	Audio surround right
AUDIO-SR	Audio Sub woofer
AUDIO_SW	A hardware and software control system that measures picture content, and adapts image parameters in a dynamic way
Auto TV	Monochrome TV system. Sound carrier distance is 5.5 MHz. B= VHF-band, G= UHF-band
B/G	Blue SCART1 in
B-SC1-IN	Blue SCART2 in
B-SC2-IN	Blue teletext
B-TXT	Constant Level: audio output to connect with an external amplifier
CL	Computer aided rePair
ComPair	Customer Service Mode
CSM	Colour Transient Improvement: manipulates steepness of chroma transients
CTI	Composite Video Blanking and Synchronisation
CVBS	CVBS terrestrial
CVBS-TER	COLOUR LUMInance Baseband
COLUMBUS	Universal Subsystem. IC performing noise reduction and 2D/3D comb filtering
DAC	Digital to Analogue Converter
DBE	Dynamic Bass Enhancement: extra low frequency amplification
DDC	Display Data Channel; is a part of the "Plug and Play" feature
DFU	Direction For Use: description for the end user
D/K	Monochrome TV system. Sound carrier distance is 6.5 MHz. D= VHF-band, K= UHF-band

DNR	Digital Noise Reduction: noise reduction feature of the box	Last Status	The settings last chosen by the customer, read, and stored in RAM or in the NVM. They are called at start-up of the set to configure it according to the customers wishes
DPL	Dolby ProLogic	LCD	Liquid Crystal Display
DSP	Digital Signal Processing	LPL	LG-Philips LCD
DST	Dealer Service Tool: special remote control designed for dealers to enter e.g. service mode	LED	Light Emitting Diode
DVD	Digital Versatile Disc	L/L'	Monochrome TV system. Sound carrier distance is 6.5 MHz. L' is Band I, L is all bands except for Band I
DVI(-d)(-i)	Digital Visual Interface (d= digital only) (i= integrated); a digital video interface to a display, designed to replace the analogue YPbPr or RGB interface	LNA	Low Noise Adapter
Eagle	Feature box IC performing peaking, zooming and sub pixel LTI in both horizontal and vertical direction, CTI and other colour features	LORE	LOcal REGression based noise reduction
EDID	Extended Display Identification Data (VESA standard)	LSP	Large signal panel
EEPROM	Electrically Erasable and Programmable Read Only Memory	LVDS	Low Voltage Differential Signalling; Data transmission system for high speed and low EMI communication
EHT	Extra High Tension	M/N	Monochrome TV system. Sound carrier distance is 4.5 MHz. M= 525 lines @ 60 Hz, N= 625 lines @ 50 Hz
EPG	Electronic Program Guide: system used by broadcasters to transmit TV guide information (= NextView)	MUTE	Mute-Line
EPLD	Erasable Programmable Logic Device	NC	Not Connected
EU	EUrope	NICAM	Near Instantaneously Companded Audio Multiplexing; This is a digital sound system, mainly used in Europe
EXT	External (source), entering the set via SCART or via cinches	NTSC	National Television Standard Committee; Colour system mainly used in North America and Japan. Colour carrier NTSC M/N= 3.579545 MHz, NTSC 4.43= 4.433619 MHz (this is a VCR norm, it is not transmitted off-air)
FALCONIC	SAA4992H, Feature Box IC performing Digital Natural Motion, 3DNR, and vertical zoom and vertical peaking		
FBL	Fast Blanking: DC signal accompanying RGB signals	NVM	Non Volatile Memory: IC containing TV related data e.g. alignments
FBL-PIP	The fast blanking signal for PIP	O/C	Open Circuit
FBL-TXT	The fast blanking signal for TXT. It has a higher priority than FBL-PIP	OSD	On Screen Display
FBX	Feature Box: part of small signal / separate module which contains 100 Hz processing, extra featurig and AutoTV algorithms (FBX6= based on PICNIC, FBX7= based on PICNIC and Eagle)	OTC	On screen display Teletext and Control; also named Artistic (SAA5800)
FDS	Full Dual Screen	P50	Project 50 communication: protocol between TV and peripherals
FEM	Falconic Embedded Memory; IC (SAA4998H) that is the successor of the SAA4993H with jagged line removal and embedded memory	PAL	Phase Alternating Line; Colour system mainly used in West Europe (colour carrier= 4.433619 MHz) and South America (colour carrier PAL M= 3.575612 MHz and PAL N= 3.582056 MHz)
FHP	Fujitsu Hitachi Plasma display Ltd.	PCB	Printed Circuit Board
FLOF	Full Level One Features, TXT standard	PDP	Plasma Display Panel
FLASH	Flash memory	PFC	Power Factor Corrector (or Pre-conditioner)
FM	Field Memory or Frequency Modulation	PICNIC	Peripheral Integrated Combined Network IC (SAA4978): main IC for 100 Hz featurig and feature processing
G-TXT	Green teletext	PIP	Picture In Picture
HA	Horizontal Acquisition: horizontal sync pulse coming out of the HIP	PLL	Phase Locked Loop; Used for e.g. FST tuning systems. The customer can directly provide the desired frequency
HD at HOME	A signal from the OTC, to switch the HOP to the Pixel Plus standard (75 Hz frame)	POR	Power On Reset; Signal to reset the μ P
HIP	High-end video Input Processor (TDA9320): video and chroma decoder of EM5E	Progressive Scan	Scan mode where all scan lines are displayed in one frame at the same time, creating a double vertical resolution.
HP	Head phone		
I	Monochrome TV system. Sound carrier distance is 6.0 MHz. VHF- and UHF-band	PSU	Power Supply Unit
I/O	Input/Output	PWB	Printed Wiring Board
I ² C	Inter IC bus (also called IIC)	RAM	Random Access Memory
IF	Intermediate Frequency	R-TXT	Red teletext
Interlaced	Scan mode where two fields are used to form one frame. Each field contains half the number of the total amount of lines. The fields are written in "pairs", causing line flicker	RC	Remote Control
		RC5 / RC6	Signal protocol from the remote control receiver
		RESET	Reset signal

RGB	Red, Green, and Blue colour space; The primary colour signals for TV. By mixing levels of R, G, and B, all colours (Y/C) are reproduced
RGBHV	Red, Green, Blue, Horizontal sync, and Vertical sync
ROM	Read Only Memory
SAM	Service Alignment Mode
S/C	Short Circuit
SCL-F	Clock signal on fast I ² C bus
SD	Standard Definition
SDA-F	Data signal on fast I ² C bus
SDI	Samsung Display Industry
SECAM	SÉquence Couleur Avec Mémoire; Colour system mainly used in France and East Europe. The chroma is FM modulated and the R-Y and B-Y signals are transmitted line sequentially. Colour carriers= 4.406250 MHz and 4.250000 MHz
SIF	Sound Intermediate Frequency
SMD	Surface Mounted Device
SMPS	Switched Mode Power Supply
SNERT	Synchronous No parity Eight bit Reception and Transmit
SSB	Small Signal Board
STBY	Stand-by
SW	Sub woofer
SVGA	800x600 (4:3)
SVHS	Super Video Home System
TMDS	Transition Minimised Differential Signalling
TOP	Table Of Pages; TXT standard
TXT	Teletext
uP	Microprocessor
UV	Colour difference signals
UVSH	UHF, VHF, S-, and Hyper-band
VA	Vertical Acquisition
V-a	Addressing voltage for the plasma display
VDS	Virtual Dolby Surround
VESA	Video Electronics Standards Association
VFB	Vertical Flyback Pulse: vertical sync pulse coming from the Feature Box
VGA	Video Graphics Array; 640x480 (4:3)
VL	Variable Level out: processed audio output towards external amplifier
V-ra	Setting voltage for V_a
V-rs	Setting voltage for V_s
V-s	Sustain voltage for the plasma display
WSS	Wide Screen Signalling; used by broadcasters to transmit e.g. PALPLUS and 16:9 Aspect Ratio
WXGA	Wide eXtended Graphics Array; 1280x768 (15:9) or 1366x768 (16:9)
WYSIWYR	What You See Is What You Record: record selection that follows main picture and sound
XGA	Extended Graphics Array; 1024x768 (4:3)
XTAL	Quartz crystal
Y	Luminance signal
Y100	Y from Feature Box
YPbPr	This is a scaled version of the YUV colour space. Y= Luminance, Pb/Pr= Colour difference signals B-Y and R-Y, other amplitudes w.r.t. to YUV
Y-OUT	Luminance-signal to HOP IC
YUV	Colour space used by the NTSC and PAL video systems. Y is the luminance and U/V are the colour difference signals

10. Spare Parts List

Set Level					
Various					
0271	3104 303 12091	Thermal foam block	2038	2020 552 96618	1nF 10% 50V 0402
1004▲	8204 000 78201	S50HW-XD04 (SDI)	2039	2020 552 96623	2.2nF 10% 50V 0402
1004▲	9322 224 77682	FPF42C128128UD(FHP)	2040	3198 034 02790	47pF 1% 50V 0402
1088	3104 328 39552	CCFL inverter panel	2041	2238 869 15101	100pF 5% 50V 0402
1089	3104 328 39552	CCFL inverter panel	2042	3198 035 03310	330pF 5% 50V 0402
1175	2722 171 00259	Ambi light 500L (42")	2043	4822 124 12084	1μF 20% 50V
1175	2722 171 00263	Ambi light 600R (50")	2044	2238 930 11541	220pF 5% 200V
1176	2722 171 00257	Ambi light 500R (42")	2045	2238 930 11541	220pF 5% 200V
1176	2722 171 00261	Ambi light 600R (50")	2046	2252 568 08305	33pF 5% 500V
5213	2441 257 10002	Loudspeaker 8Ω 15W	2047	2238 586 59812	100nF 20% 50V 0603
5214	2441 257 10002	Loudspeaker 8Ω 15W	2048	2020 552 96683	220nF 10% 50V
5215	2441 257 10003	Loudspeaker passive	2049	2238 867 18101	100pF 1% 50V 0603
5216	2441 257 10003	Loudspeaker passive	2050	2238 586 15641	22nF 10% 50V 0603
8202	3104 311 08651	Cable 9p/340/9p	2051	4822 122 33177	10nF 20% 50V
8250	3104 311 08081	Cable 31p/350/30p	2052	4822 124 12056	1000μF 20% 35V
8250	3104 311 08841	Cable 31p/220/31p	2053	2022 031 00308	22μF 20% 35V
8302	3104 311 08931	Cable 7p/1000/7p	2054	2238 869 15221	220pF 1% 50V 0402
8302	3104 311 10121	Cable 7p/280/7p	2055	2020 552 96621	1.5nF 10% 50V 0402
8310	3104 311 08671	Cable 4p/250/4p	2056	2238 869 15221	220pF 1% 50V 0402
8310	3104 311 10641	Cable 4p/820/4p	2057	2020 552 96621	1.5nF 10% 50V 0402
8323	3104 311 10361	Cable 10p/280/10p	2058	4822 124 41828	1μF 20% 250V
8508	3104 311 10651	Cable 4p/1000/4p	2059	2238 586 59812	100nF 20% 50V 0603
8548	3104 311 10661	Cable 3p/1300/3p	2060	2020 552 96683	220nF 10% 50V
8735	3104 311 09471	Cable 2p/1600/2p	2061	2238 586 59812	100nF 20% 50V 0603
8735	3104 311 10111	Cable 2p/1600/2p	2070	2020 552 96618	1nF 10% 50V 0402
8736	3104 311 09721	Cable 2p/820/2p	2071	2020 552 96618	1nF 10% 50V 0402
8736	3104 311 09851	Cable 2p/1700/2p	2111	2238 869 15221	220pF 1% 50V 0402
8911	3104 311 07911	Cable ring/180/ring	2112	2020 552 96618	1nF 10% 50V 0402
			2113	4822 124 12379	220μF 25V
			2114	2020 552 96683	220nF 10% 50V
			2118	4822 126 13449	1nF 10% 2kV
			2121	2020 024 90736	2200μF 20% 100V
			2122	4822 121 51319	1μF 10% 63V
			2123	3198 035 03320	3.3nF 5% 50V 0402
			2126	2238 586 59812	100nF 20% 50V 0603
			2133	4822 124 81151	22μF 50V
			2203	2238 586 59812	100nF 20% 50V 0603
			2210	4822 124 80151	47μF 16V
			2211	3198 035 04710	470pF 50V 0402
			2212	2020 552 96326	220nF 10% 16V
			2213	3198 035 14720	4.7nF 5% 25V 0402
			2214	3198 035 14720	4.7nF 5% 25V 0402
			2215	3198 035 04710	470pF 50V 0402
			2218	2222 375 90141	3.3nF 1.6kV 5%
			2222	2238 869 15101	100pF 5% 50V 0402
			2223	2238 869 15101	100pF 5% 50V 0402
			2225	2020 021 91551	2200μF 20% 25V
			2226	2238 586 59812	100nF 20% 50V 0603
			2227	2238 869 15101	100pF 5% 50V 0402
			2229	2020 021 00036	470μF 20% 16V
			2230	2020 021 00036	470μF 20% 16V
			2231	4822 124 80151	47μF 16V
			2232	2238 869 15101	100pF 5% 50V 0402
			2234	2022 552 05679	1μF 10% 16V 0805
			2236	4822 124 23002	10μF 16V
			2237	4822 124 23002	10μF 16V
			2263	2222 861 15272	2.7nF 5% 50V 0805
			2264	4822 126 14583	470nF 10% 16V 0805
			2265	3198 035 03310	330pF 5% 50V 0402
			2267	5322 122 32531	100pF 5% 50V
			2268	2020 552 96683	220nF 10% 50V
			2269	4822 123 14025	2200μF 20% 16V
			2270	4822 124 04033	47μF 20% 25V
			2273	2238 586 59812	100nF 20% 50V 0603
			2274	2020 552 96628	10nF 10% 16V 0402
			2290	5322 126 11583	10nF 10% 50V 0603
			2291	3198 035 04710	470pF 50V 0402
			2293	3198 035 04710	470pF 50V 0402
			2295	3198 035 04710	470pF 50V 0402
			2296	3198 035 04710	470pF 50V 0402
			2304	2020 552 96618	1nF 10% 50V 0402
			2305	2238 586 59812	100nF 20% 50V 0603
			2306	2238 586 59812	100nF 20% 50V 0603
			2322	2238 586 59812	100nF 20% 50V 0603
			2324	2238 586 59812	100nF 20% 50V 0603
			2350	4822 124 12095	100μF 20% 16V
			2352	2238 586 59812	100nF 20% 50V 0603
			2364	2238 586 59812	100nF 20% 50V 0603
			2376	2238 586 59812	100nF 20% 50V 0603
			2377	2238 586 59812	100nF 20% 50V 0603
			2381	2238 586 59812	100nF 20% 50V 0603
			2397	4822 124 12095	100μF 20% 16V
			2398	4822 124 23002	10μF 16V
			2400▲	2222 338 22474	470nF 20% 275V
			2401▲	2222 338 22474	470nF 20% 275V
			2404	4822 126 14525	47pF 5% 1kV
			2405▲	2252 811 95017	470pF 10% 250V
			2406	4822 126 14525	47pF 5% 1kV
			2407▲	2252 811 95017	470pF 10% 250V
			2465	4822 124 12095	100μF 20% 16V
			2502	2238 869 15101	100pF 5% 50V 0402
			2503	2020 024 90708	47μF 400V 20%
			2504	2020 552 96618	1nF 10% 50V 0402
			2505	4822 124 12056	1000μF 20% 35V
			2507	2238 869 15101	100pF 5% 50V 0402
			2508	4822 124 12095	100μF 20% 16V
			2509	2238 869 15101	100pF 5% 50V 0402
			2510	2020 021 91506	1000μF 20% 16V
			2511	2238 586 59812	100nF 20% 50V 0603
			2512	2238 586 59812	100nF 20% 50V 0603
			2513	2222 580 15649	100nF 10% 50V 0805
			2532	4822 124 12095	100μF 20% 16V
			2533	4822 124 12095	100μF 20% 16V
			2534	2022 552 05679	1μF 10% 16V 0805
			2540	4822 124 12095	100μF 20% 16V
			2541	4822 124 12095	100μF 20% 16V
			2600	4822 122 33799	1nF 10% 1kV
			2601	4822 122 33799	1nF 10% 1kV
			2602	2020 552 96623	2.2nF 10% 50V 0402
			2603	2222 383 90136	1μF 5% 400V
			2605	2222 383 90136	1μF 5% 400V
			2608	2020 552 96618	1nF 10% 50V 0402
			2610	4822 121 70584	1.8nF 5% 2kV
			2611	4822 126 12263	220pF 10% 2kV
			2612	2020 552 96618	1nF 10% 50V 0402
			2614	2020 552 96623	2.2nF 10% 50V 0402
			2616	4822 124 12415	220μF 20% 400V
			2617	4822 124 12415	220μF 20% 400V
			2640	3198 035 04710	470pF 50V 0402
			2642	2020 552 96618	1nF 10% 50V 0402
			2651	2020 552 96628	10nF 10% 16V 0402
			2653	3198 035 06810	680pF 5% 50V 0402
			2654	4822 124 80151	47μF 16V
			2655	2022 552 05679	1μF 10% 16V 0805
			2656	2222 580 15649	100nF 10% 50V 0805
			2660	4822 126 13881	470pF 5% 50V
			2661	2020 552 96618	1nF 10% 50V 0402
			2662	4822 124 80061	1000μF 20% 25V
			2663	4822 121 51319	1μF 10% 63V
			2664	4822 124 40255	100μF 20% 63V
			2665	4822 126 13881	470pF 5% 50V
			2666	2020 552 96793	4.7nF 10% 50V 0402
			2670	2238 586 59812	100nF 20% 50V 0603
			2671	2238 586 59812	100nF 20% 50V 0603
			2672	2222 580 15649	100nF 10% 50V 0805
			2673	2020 558 90621	10nF 630V
			2674	2020 558 90621	10nF 630V
			2675	2020 558 90621	10nF 630V
			2676	2020 558 90621	10nF 630V
			2677	2020 552 96623	2.2nF 10% 50V 0402
			2690	2020 552 96618	1nF 10% 50V 0402

3039	4822 051 30105	1MΩ 5% 0.062W	3204	4822 117 11297	100kΩ 5% 0.1W	3461	4822 117 13606	10kΩ 5% 0.01W 0402
3040	4822 117 10837	100kΩ 1% 0.1W	3205	4822 117 11297	100kΩ 5% 0.1W	3463	4822 117 13606	10kΩ 5% 0.01W 0402
3041	4822 117 13603	33kΩ 5% 0402	3206	4822 117 12955	2.7kΩ 1% 0.1W 0805	3465	4822 117 13606	10kΩ 5% 0.01W 0402
3042	4822 051 30471	47Ω 5% 0.062W	3207	4822 117 12955	2.7kΩ 1% 0.1W 0805	3467	4822 117 13606	10kΩ 5% 0.01W 0402
3043	3198 031 04720	4.7kΩ 5% 0402	3208	4822 117 12955	2.7kΩ 1% 0.1W 0805	3469	3198 031 04720	4.7kΩ 5% 0402
3044	4822 051 30102	1kΩ 5% 0.062W	3209	4822 117 12955	2.7kΩ 1% 0.1W 0805	3470	4822 117 13606	10kΩ 5% 0.01W 0402
3045	4822 051 30102	1kΩ 5% 0.062W	3210	2322 706 71002	1kΩ 1% 0402	3471▲	4822 117 13548	1kΩ 5% 0402
3047	3198 031 01540	150kΩ 5% 0402	3212	4822 051 30102	1kΩ 5% 0.062W	3472▲	4822 117 13548	1kΩ 5% 0402
3048	3198 031 04720	4.7kΩ 5% 0402	3213	4822 117 13603	33kΩ 5% 0402	3501	4822 051 30102	1kΩ 5% 0.062W
3049	3198 031 01230	12kΩ 5% 0402	3214	2322 705 70124	120kΩ 5% 0402	3502	4822 051 30471	47kΩ 5% 0.062W
3050▲	4822 052 10398	3.9Ω 5% 0.33W	3215	2322 705 70274	270kΩ 5% 0402	3503	2322 706 74702	4.7kΩ 5% 0402
3051	4822 051 20822	8.2kΩ 5% 0.1W	3216	4822 117 13548	1kΩ 5% 0402	3504	2322 706 73303	33kΩ 5% 0402
3053▲	2322 662 93131	PTC 10Ω	3217	4822 117 13606	10kΩ 5% 0.01W 0402	3505	2322 706 74702	4.7kΩ 5% 0402
3054	4822 117 13543	470Ω 5% 0402	3218	2122 118 06084	0.051Ω 5% 1W 2512	3506▲	2322 662 93131	PTC 10Ω
3055	4822 117 10833	10kΩ 1% 0.1W	3219	4822 117 13606	10kΩ 5% 0.01W 0402	3509	2312 915 11209	12Ω 1% 0.5W
3056	4822 051 30331	330Ω 5% 0.062W	3220	4822 050 23309	33Ω 1% 0.6W	3603	4822 051 20474	470kΩ 5% 0.1W
3057	4822 051 30101	100Ω 5% 0.062W	3224	2322 706 71203	12kΩ 5% 0402	3604	4822 051 20474	470kΩ 5% 0.1W
3058	4822 051 20105	1MΩ 5% 0.1W	3225	2322 706 71003	10kΩ 5% 0402	3605	4822 051 20474	470kΩ 5% 0.1W
3059	3198 031 05630	56kΩ 5% 0402	3226	4822 117 13606	10kΩ 5% 0.01W 0402	3606	4822 051 30101	100Ω 5% 0.062W
3060	4822 050 22204	220kΩ 1% 0.6W	3228	4822 051 30151	150Ω 5% 0.062W	3607	4822 117 12891	220kΩ 1%
3061	3198 031 01830	18kΩ 5% 0.01W 0402	3262	2322 706 71003	10kΩ 5% 0402	3608	2312 915 11209	12Ω 1% 0.5W
3062	4822 117 13548	1kΩ 5% 0402	3263	2322 706 71003	10kΩ 5% 0402	3609	4822 051 20474	470kΩ 5% 0.1W
3063	4822 117 13548	1kΩ 5% 0402	3265	4822 117 13548	1kΩ 5% 0402	3610	4822 050 23308	3.3Ω 1% 0.6W
3064	4822 117 13606	10kΩ 5% 0.01W 0402	3268	4822 117 13548	1kΩ 5% 0402	3611	4822 050 21003	10kΩ 1% 0.6W
3065	4822 117 13548	1kΩ 5% 0402	3269	3198 031 02720	2.7kΩ 5% 0.01W 0402	3613	4822 117 13606	10kΩ 5% 0.01W 0402
3066	4822 117 13606	10kΩ 5% 0.01W 0402	3292	4822 051 30561	560Ω 5% 0.062W	3614	2322 194 95001	0.27Ω 5% 2W
3067	3198 031 01530	15kΩ 5% 0.01W 0402	3300	2322 706 72204	220kΩ 5% 0402	3615	2322 194 95001	0.27Ω 5% 2W
3068	4822 117 13606	10kΩ 5% 0.01W 0402	3301	2322 706 72204	220kΩ 5% 0402	3616	3198 031 01230	12kΩ 5% 0402
3069	4822 051 30471	47Ω 5% 0.062W	3304	4822 051 30102	1kΩ 5% 0.062W	3617	3198 031 04730	47Ω 5% 0402
3070	4822 051 30103	10kΩ 5% 0.062W	3306	2322 706 71003	10kΩ 5% 0402	3618	4822 117 13603	33kΩ 5% 0402
3071	3198 031 04730	47Ω 5% 0402	3307	5322 117 13028	12kΩ 1% 0.063W 0603	3619	3198 031 03320	3.3kΩ 5% 0402
3073	3198 031 01050	1MΩ 5% 0402	3308	4822 051 30102	1kΩ 5% 0.062W	3620	2322 194 95001	0.27Ω 5% 2W
3074	3198 031 01530	15kΩ 5% 0.01W 0402	3311	4822 117 13579	220kΩ 1% 0.1W 0805	3621	4822 050 22208	2.2Ω 1% 0.6W
3075	4822 051 20105	1MΩ 5% 0.1W	3312	4822 051 30102	1kΩ 5% 0.062W	3622	4822 050 22208	2.2Ω 1% 0.6W
3076	4822 117 11297	100kΩ 5% 0.1W	3313	2322 704 67502	7.5kΩ 1% 0.5W	3623	4822 117 13548	1kΩ 5% 0402
3077	4822 051 20105	1MΩ 5% 0.1W	3317	2322 704 67502	7.5kΩ 1% 0.5W	3639	4822 051 10102	1kΩ 2% 0.25W
3078	4822 117 11297	100kΩ 5% 0.1W	3320	2322 706 71003	10kΩ 5% 0402	3640	4822 051 30331	330Ω 5% 0.062W
3079	4822 051 30681	680Ω 5% 0.062W	3321	4822 051 30102	1kΩ 5% 0.062W	3641	4822 051 20471	470Ω 5% 0.1W
3080	4822 051 30681	680Ω 5% 0.062W	3322	2322 706 73902	3.9kΩ 1% 0402	3642	4822 117 11503	220Ω 1% 0.1W
3081	3198 031 01520	1.2kΩ 5% 0.01W 0402	3323	2322 706 71003	10kΩ 5% 0402	3643	4822 117 11503	220Ω 1% 0.1W
3082	3198 031 01520	1.2kΩ 5% 0.01W 0402	3324	4822 051 30102	1kΩ 5% 0.062W	3651	4822 117 13601	22kΩ 5% 0402
3083	2312 915 11002	1kΩ 1% 0.5W	3325	4822 051 30471	47Ω 5% 0.062W	3652	3198 031 01050	1MΩ 5% 0402
3084	4822 117 13606	10kΩ 5% 0.01W 0402	3326	3198 031 04720	4.7kΩ 5% 0402	3654	4822 117 13606	10kΩ 5% 0.01W 0402
3085	3198 031 04730	47Ω 5% 0402	3327	4822 117 13606	10kΩ 5% 0.01W 0402	3655	4822 117 13548	1kΩ 5% 0402
3086	3198 031 04730	47Ω 5% 0402	3328	4822 051 30103	10kΩ 5% 0.062W	3656	3198 031 01820	1.8kΩ 5% 0.01W 0402
3087	3198 031 04730	47Ω 5% 0402	3332	2322 706 76803	68kΩ 5% 0402	3659	4822 117 11503	220Ω 1% 0.1W
3088	3198 031 04730	47Ω 5% 0402	3333	4822 051 30102	1kΩ 5% 0.062W	3660	4822 117 11504	270Ω 1% 0.1W
3089	4822 117 13606	10kΩ 5% 0.01W 0402	3334	2322 706 71003	10kΩ 5% 0402	3661	4822 117 11504	270Ω 1% 0.1W
3090	4822 117 13548	100Ω 1% 0402	3335	2322 706 71503	15kΩ 5% 1W 0402	3663▲	4822 052 10108	1Ω 5% 0.33W
3091	4822 051 30102	1kΩ 5% 0.062W	3340	4822 051 30102	1kΩ 5% 0.062W	3664	2322 706 71204	120kΩ 5% 0402
3092	4822 051 10102	1kΩ 2% 0.25W	3341	4822 117 13606	10kΩ 5% 0.01W 0402	3665	2322 705 70274	270kΩ 5% 0402
3093	4822 117 13548	1kΩ 5% 0402	3342	4822 051 30103	10kΩ 5% 0.062W	3666	4822 051 30101	10kΩ 5% 0.062W
3094	4822 051 10102	1kΩ 2% 0.25W	3343	4822 051 30102	1kΩ 5% 0.062W	3668▲	4822 052 11102	1kΩ 5% 0.5W
3095	4822 117 13543	470Ω 5% 0402	3344	4822 051 30102	1kΩ 5% 0.062W	3669	2322 706 71204	120kΩ 5% 0402
3096	3198 031 05620	5.6kΩ 5% 0.01W 0402	3345	4822 117 13548	1kΩ 5% 0402	3671	2322 706 71003	10kΩ 5% 0402
3097	3198 031 08210	820Ω 5% 0.5W	3346	4822 117 13548	1kΩ 5% 0402	3673▲	4822 052 11102	1kΩ 5% 0.5W
3098	4822 117 13548	1kΩ 5% 0402	3347	4822 051 30331	330Ω 5% 0.062W	3675	2322 702 60158	1.5Ω
3100	2322 706 71002	1kΩ 1% 0402	3348	4822 051 30331	330Ω 5% 0.062W	3676	2322 706 74702	4.7kΩ 5% 0402
3101	2322 706 71002	1kΩ 1% 0402	3349	4822 051 30102	1kΩ 5% 0.062W	3677	2322 706 74703	47kΩ 1% 0402
3102	2322 706 71002	1kΩ 1% 0402	3350	4822 051 30472	4.7Ω 5% 0.062W	3678	3198 031 04730	47Ω 5% 0402
3103	2322 706 71002	1kΩ 1% 0402	3351	4822 051 30103	10kΩ 5% 0.062W	3680	4822 117 13579	220kΩ 1% 0.1W 0805
3104	2322 706 71002	1kΩ 1% 0402	3352	4822 051 30103	10kΩ 5% 0.062W	3681	4822 117 13579	220kΩ 1% 0.1W 0805
3106	4822 117 12955	2.7kΩ 1% 0.1W 0805	3353	4822 117 13606	10kΩ 5% 0.01W 0402	3682	4822 117 13579	220kΩ 1% 0.1W 0805
3107	4822 117 12955	2.7kΩ 1% 0.1W 0805	3354	3198 031 04720	4.7kΩ 5% 0402	3683	4822 051 20334	330kΩ 5% 0.1W
3108	4822 117 12955	2.7kΩ 1% 0.1W 0805	3358	4822 051 30222	2.2kΩ 5% 0.062W	3684	4822 051 20334	330kΩ 5% 0.1W
3109	4822 117 12955	2.7kΩ 1% 0.1W 0805	3359	3198 031 05620	5.6kΩ 5% 0.01W 0402	3685	4822 051 20334	330kΩ 5% 0.1W
3110	4822 117 13548	1kΩ 5% 0402	3360	3198 031 01220	1.2kΩ 5% 0.01W 0402	3690	3198 031 03920	3.9kΩ 5% 0402
3112	4822 051 30102	1kΩ 5% 0.062W	3361	3198 031 04720	4.7kΩ 5% 0402	3691	3198 031 08220	8.2kΩ 5% 0.5W
3114	2322 705 70564	560kΩ 5% 0402	3362	3198 031 02720	2.7kΩ 5% 0.01W 0402	3692	4822 117 13606	10kΩ 5% 0.01W 0402
3115	3198 031 02240	220kΩ 5% 0.1W 0402	3363	4822 051 30102	1kΩ 5% 0.062W	3693	4822 117 13602	2.2kΩ 5% 0.01W 0402
3116	4822 117 13548	1kΩ 5% 0402	3364	4822 051 30102	1kΩ 5% 0.062W	3806	4822 117 13543	470Ω 5% 0402
3117	4822 117 13606	10kΩ 5% 0.01W 0402	3366	4822 117 13606	10kΩ 5% 0.01W 0402	3807	4822 117 13606	10kΩ 5% 0.01W 0402
3118	2122 118 06084	0.051Ω 5% 1W 2512	3367	4822 051 30103	10kΩ 5% 0.062W	3808	4822 117 13606	10kΩ 5% 0.01W 0402
3120	3198 021 31820	1.8kΩ 5% 0.062W 0603	3369	3198 031 04720	4.7kΩ 5% 0402	3809	3198 031 02730	27kΩ 5% 0402
3121	3198 031 04730	47Ω 5% 0402	3370	2322 675 20907	PTC 470Ω 50% 25V 0805	3811	4822 117 13545	100Ω 1% 0402
3123	4822 117 10965	18kΩ 1% 0.1W	3373	3198 031 04720	4.7kΩ 5% 0402	3999	4822 117 13548	1kΩ 5% 0402
3124	2322 704 67502	7.5kΩ 1% 0.5W	3374	3198 031 04730	47Ω 5% 0402	9001	4822 051 20008	Jumper 0805
3125	2322 704 67502	7.5kΩ 1% 0.5W	3376	3198 031 04730	47Ω 5% 0402	9003	4822 051 20008	Jumper 0805
3126	2322 706 72202	2.2kΩ 5% 0402	3377	3198 031 04720	4.7kΩ 5% 0402	9004	4822 117 13605	Jumper 0402
3128	4822 117 13603	33kΩ 5% 0402	3378	4822 117 13606	10kΩ 5% 0.01W 0402	9020	4822 051 20008	Jumper 0805
3130	4822 051 30123	12kΩ 5% 0.1W	3380	3198 031 04730	47Ω 5% 0402	9021	4822 051 20008	Jumper 0805
3131	2322 706 71003	10kΩ 5% 0402	3381	3198 031 04730	47Ω 5% 0402	9022	4822 051 20008	Jumper 0805
3132	4822 117 13596	220Ω 5% 0.01W 0402	3383	4822 117 13606	10kΩ 5% 0.01W 0402	9028	4822 117 13605	Jumper 0402
3133	4822 051 30101	100Ω 5% 0.062W	3384	4822 117 13606	10kΩ 5% 0.01W 0402			
3134	4822 051 30681	680Ω 5% 0.062W	3388	4822 051 30102	1kΩ 5% 0.062W			
3135	3198 031 04							

5229	2422 536 00826	220µH 10%
5290	3104 308 21171	transf. BD15403-00
5291	4822 157 11737	22µH 10%
5292	4822 157 11737	22µH 10%
5293	4822 157 11737	22µH 10%
5401▲	3122 138 38901	Mains filter CU28D3
5402▲	3122 138 38901	Mains filter CU28D3
5500▲	2422 531 00075	Transf. BS16421-00
5503	4822 157 11737	22µH 10%
5600	3104 308 20821	Coil BS42228-00 B
5601	4822 157 11411	Bead 80Ω at 100MHz
5612	4822 157 11411	Bead 80Ω at 100MHz
5660	4822 157 51192	220µH 10%



6002	4822 130 11397	BAS316
6003	9340 548 71115	PDZ33B
6004	4822 130 11397	BAS316
6005	4822 130 11397	BAS316
6006	4822 130 11397	BAS316
6007	4822 130 11397	BAS316
6008	4822 130 11397	BAS316
6009	4822 130 11397	BAS316
6010	4822 130 11397	BAS316
6011	4822 130 11397	BAS316
6012	3198 020 55680	BZX384-C5V6
6018	4822 130 11397	BAS316
6019	4822 130 11397	BAS316
6021	4822 130 32961	BYV28-200
6023	4822 130 11397	BAS316
6027	4822 130 11397	BAS316
6028	4822 130 11397	BAS316
6029	4822 130 11416	PDZ6.8B
6031	3198 020 55680	BZX384-C5V6
6032	3198 020 55680	BZX384-C5V6
6033	9322 150 18685	BZX384-C47
6034	4822 130 11397	BAS316
6035	4822 130 11397	BAS316
6042	9322 150 18685	BZX384-C47
6044	9322 202 88687	STTH2003CFP
6045	4822 130 32961	BYV28-200
6050	4822 130 11152	UDZ18B
6054	9340 553 52115	BAS321
6055	9340 553 52115	BAS321
6061	4822 130 11152	UDZ18B
6062	4822 130 11152	UDZ18B
6075	9340 292 80135	BZG03-C270
6077	9340 292 80135	BZG03-C270
6086	4822 130 11397	BAS316
6111	4822 130 11397	BAS316
6112	4822 130 11397	BAS316
6113	4822 130 11397	BAS316
6114	4822 130 11416	PDZ6.8B
6117	4822 130 11152	UDZ18B
6120	9322 202 75687	BYW29FP-200
6123	4822 130 11397	BAS316
6133	4822 130 11397	BAS316
6142	9322 192 15668	SM S3J
6201	3198 020 55680	BZX384-C5V6
6202	4822 130 11397	BAS316
6204	3198 020 55680	BZX384-C5V6
6205	4822 130 11152	UDZ18B
6206	4822 130 11397	BAS316
6211	9322 202 55685	BYG22D
6213	4822 130 11397	BAS316
6216	4822 130 11152	UDZ18B
6225	9322 173 47687	STPS20L40CFP
6230	9322 155 79685	EC31QS04
6267	4822 130 82627	SB540
6268	9322 128 70685	SMSS14
6269	9322 099 61685	BYG10J
6270	9322 099 61685	BYG10J
6291	4822 130 11572	STPS8H100F
6292	4822 130 11572	STPS8H100F
6312	4822 130 80622	BAT54
6313	4822 130 80622	BAT54
6321	4822 130 80622	BAT54
6322	4822 130 80622	BAT54
6325	4822 130 11416	PDZ6.8B
6333	4822 130 80622	BAT54
6334	4822 130 80622	BAT54
6335	4822 130 11397	BAS316
6340	4822 130 80622	BAT54
6341	4822 130 80622	BAT54
6347	4822 130 80622	BAT54
6362	4822 130 11397	BAS316
6364	4822 130 11397	BAS316
6365	4822 130 11397	BAS316
6366	4822 130 11397	BAS316
6375	4822 130 11397	BAS316
6376	4822 130 11397	BAS316
6378	4822 130 80622	BAT54

6460	4822 130 11397	BAS316
6461	4822 130 11397	BAS316
6470	4822 130 11397	BAS316
6471	4822 130 11397	BAS316
6501	9322 218 64673	BZT03C200
6502	9322 218 64673	BZT03C200
6503	9322 176 76668	RS1J
6504	9322 176 76668	RS1J
6505	9322 155 79685	EC31QS04
6506	9322 218 64673	BZT03C200
6510	9322 099 61685	BYG10J
6511	9322 099 61685	BYG10J
6512	9322 099 61685	BYG10J
6513	9322 099 61685	BYG10J
6600	9322 177 84667	GBU8JL-7014
6601	9322 150 17685	BZX384-C39
6602	4822 130 11522	UDZ15B
6605	9322 192 15668	SM S3J
6606	9322 192 15668	SM S3J
6608	9322 128 70685	SMSS14
6609	9322 208 81685	BZG05C18
6611	3139 120 52021	BYV29X-500
6640	9322 128 70685	SMSS14
6641	4822 130 11397	BAS316
6642	9322 128 70685	SMSS14
6643	4822 130 11152	UDZ18B
6651	4822 130 80622	BAT54
6652	9322 128 70685	SMSS14
6653	4822 130 10837	UDZS8.2B
6654	4822 130 11397	BAS316
6660	9322 202 55685	BYG22D
6661	9322 202 55685	BYG22D
6663	9322 198 81685	SL04
6665	9322 198 81685	SL04
6666	4822 130 10837	UDZS8.2B



7001	9322 108 21682	MC34067P
7002▲	9322 149 04682	TCET1102
7003▲	9322 149 04682	TCET1102
7004	9322 192 17685	P0102BL
7005	9322 192 18687	STP15NK50ZFP
7006	9322 192 18687	STP15NK50ZFP
7007	4822 130 41246	BC327-25
7008	4822 130 41246	BC327-25
7009	3198 010 42310	BC847BW
7010	9322 192 16685	TS2431AI
7011	9322 192 16685	TS2431AI
7012	3198 010 42310	BC847BW
7013	5322 130 63033	BCP56
7017	3198 010 42320	BC857BW
7018	3198 010 42310	BC847BW
7020	9335 671 30126	BC517
7021	9335 671 30126	BC517
7042	9340 308 50135	PMST5401
7050	9340 557 16127	PSMN035-150P
7052	9340 557 58118	PSMN063-150D
7058	3198 010 42310	BC847BW
7059	9340 308 60135	PMST5550
7090	3198 010 42320	BC857BW
7091	3198 010 42320	BC857BW
7092	3198 010 44350	BC807-25W
7093	4822 209 80591	LM317T
7110	9340 308 50135	PMST5401
7112	9352 673 56112	TEA1507P/N1
7117	9340 557 17118	PSMN035-150B
7120▲	9322 149 04682	TCET1102
7121	9322 192 16685	TS2431AI
7130	9322 192 16685	TS2431AI
7134	3198 010 42310	BC847BW
7200	9340 565 06215	BSH114
7202	9965 000 04199	BSN20
7212	9352 673 56112	TEA1507P/N1
7217	9340 557 18127	PSMN070-200P
7220▲	9322 149 04682	TCET1102
7227	9322 192 16685	TS2431AI
7230	9322 205 64687	L4940P85
7260	9322 166 31682	L4973V3.3
7304	9322 192 16685	TS2431AI
7308	9322 213 35668	LM339P
7326	3198 010 42310	BC847BW
7327	3198 010 42310	BC847BW
7330	9322 213 35668	LM339P
7341	3198 010 42320	BC857BW
7348	3198 010 42310	BC847BW
7351	3198 010 42310	BC847BW
7352	3198 010 42310	BC847BW
7362	3198 010 42310	BC847BW
7366	9322 213 19668	LM324APW
7375	3198 010 42310	BC847BW
7376	3198 010 42310	BC847BW
7391	3198 010 42320	BC857BW

7460	9340 219 30115	BC817-25W
7461	4822 130 60142	BC869
7465	3198 010 42320	BC857BW
7470	9340 219 30115	BC817-25W
7500	9322 037 99682	TNY256P
7501▲	9322 149 04682	TCET1102
7502	9322 192 16685	TS2431AI
7540	4822 209 17398	LD1117DT33
7601	3198 010 42310	BC847BW
7602	3198 010 42320	BC857BW
7608	5322 130 44593	BC369
7610	9322 223 21687	STW29NK50Z
7640	9965 000 04199	BSN20
7641	9340 219 30115	BC817-25W
7650	9322 130 69682	MC33368P
7654	3198 010 42320	BC857BW
7655	3198 010 42310	BC847BW
7656	3198 010 42310	BC847BW
7661	5322 209 90529	MC34063AD

Ambi Light [AL]

Various

0615	3104 317 09401	SW (see Prod. Survey)
1010	2422 086 00657	Fuse 3A 125V F SMD
1050	2422 543 01431	Xtal 20MHz 16pF
1M08	2422 025 09406	Connector 4p m
1M10	2422 025 09406	Connector 4p m
1M11	2422 025 19068	Connector 11p m
1M12	2422 025 19069	Connector 3p m
1M48	2422 025 10768	Connector 3p m
1M49	2422 025 18884	Connector 4p m



2001	2020 012 00018	1000µF 20% 16V
2002	2238 586 59812	100nF 20% 50V 0603
2003	2020 552 96618	1nF 10% 50V 0402
2004	2020 552 96618	1nF 10% 50V 0402
2005	3198 034 01590	15pF 1% 50V 0402
2006	3198 034 01590	15pF 1% 50V 0402



3003	4822 117 13596	220Ω 5% 0.01W 0402
3004	4822 051 20471	470Ω 5% 0.1W
3005	4822 051 20561	560Ω 5% 0.1W
3006	2322 762 60102	1kΩ 5% 2512
3007	2322 762 60102	1kΩ 5% 2512
3008	4822 051 20471	470Ω 5% 0.1W
3009	4822 051 20561	560Ω 5% 0.1W
3010	2322 762 60102	1kΩ 5% 2512
3011	2322 762 60102	1kΩ 5% 2512
3012	4822 051 20471	470Ω 5% 0.1W
3013	4822 051 20561	560Ω 5% 0.1W
3014	2322 762 60102	1kΩ 5% 2512
3015	2322 762 60102	1kΩ 5% 2512
3016	3198 031 04720	4.7kΩ 5% 0402
3017	3198 031 04720	4.7kΩ 5% 0402
3018	3198 031 04720	4.7kΩ 5% 0402
3019	3198 031 04720	4.7kΩ 5% 0402
3020	3198 031 04720	4.7kΩ 5% 0402
3022	4822 117 13545	100Ω 1% 0402
3023	4822 117 13545	100Ω 1% 0402
3024	3198 031 04720	4.7kΩ 5% 0402
3025	3198 031 04720	4.7kΩ 5% 0402
3028	4822 117 13606	10kΩ 5% 0.01W 0402
3029	3198 031 04720	4.7kΩ 5% 0402
3030	3198 031 04720	4.7kΩ 5% 0402
3031	3198 031 04720	4.7kΩ 5% 0402
3042	4822 053 20105	1MΩ 5% 0.25W
3999	4822 051 30103	10kΩ 5% 0.062W



5002	2422 536 00923	22µH 10% LHL10
5007	2422 536 00923	22µH 10% LHL10
5008	2422 536 00923	22µH 10% LHL10
5014	3104 308 21271	Transf. BD21416-00
5015	3104 308 21271	Transf. BD21416-00
5016	3104 308 21271	Transf. BD21416-00



6000	4822 130 11397	BAS316
6001	4822 130 11397	BAS316
6002	4822 130 11397	BAS316
6003	4822 130 11397	BAS316
6004	4822 130 11397	BAS316

6005	4822 130 11397	BAS316
6006	4822 130 11152	UDZ18B
6007	4822 130 11152	UDZ18B
6008	4822 130 11152	UDZ18B
6009	4822 130 11152	UDZ18B
6010	4822 130 11152	UDZ18B
6011	4822 130 11152	UDZ18B



7001		For SW see item 0615
7002	9322 202 58668	LD1117DTS0
7009	3198 010 42310	BC847BW
7010	3198 010 42310	BC847BW
7011	3198 010 42310	BC847BW
7015	9322 214 20668	SI4946EY
7016	9322 214 20668	SI4946EY
7017	9322 214 20668	SI4946EY
7018	3198 010 42310	BC847BW
7019	3198 010 42310	BC847BW
7020	3198 010 42310	BC847BW

Small Signal Board [B]

Various

0601	3104 317 09931	SW 42" (See Prod. Surv.)
0601	3104 317 07411	SW 50" (See Prod. Surv.)
0602	3104 317 09831	SW 42" (See Prod. Surv.)
0602	3104 317 09821	SW 50" (See Prod. Surv.)
0603	3104 317 06601	SW 42" (See Prod. Surv.)
0603	3104 317 06591	SW 50" (See Prod. Surv.)
0605	3104 317 47621	SW All (See Prod. Surv.)
1000	2422 086 11092	Fuse 500mA 50V F SMD
1001	2422 543 01497	Xtal 6Mhz 20pF
1003	2422 025 14911	Socket Euro 21p f
1003	2422 025 18256	Socket 21p f Bk
1062▲	2422 549 00151	Socket 3p m
1305	2422 543 01488	Xtal 4.433619Mhz 20pF
1308	2422 543 01486	Xtal 3.579545Mhz 16pF
1404	2422 127 00543	Switch 1p 2pos
1407	2422 549 00458	Filter 5M5/5M74
1408	2422 549 44372	SAW 38.9MHz K3953L
1409	2422 549 44369	SAW 38.9MHz K9656L
1703	2422 540 00002	Resonator CSTCE*G52
1A01	2422 543 01059	Resonator 18MHz 12p
1D01	2422 033 00515	Socket DVI-I 29p f
1E02	2422 025 17274	Connector 10p m
1E04	2422 025 18738	Connector 3p m
1G50	2422 025 18427	Connector 31p f
1I01	2422 025 18133	Socket SCART
1I04	2422 025 18133	Socket SCART
1I05	2422 026 05539	Socket Cinch 2p f WhRd
1I06	2422 026 05527	Socket Cinch 2p f
1I07	2422 026 05054	Soc CINCHe 2p f WhRd
1I53	2422 549 45325	Bead 67Ω at 100MHz
1I56	2422 549 45325	Bead 67Ω at 100MHz
1I57	2422 549 45325	Bead 67Ω at 100MHz
1I59	2422 549 45325	Bead 67Ω at 100MHz
1M01	2422 025 10768	Connector 3p m
1M03	2422 025 10771	Connector 10p m
1M07	4822 267 10637	Connector 5p
1M15	4822 267 10748	Connector 3p
1M20	2422 025 10772	Connector 12p m
1M36	2422 025 10655	Connector 11p m
1M37	2422 025 10655	Connector 11p m
1M51▲	2422 025 18884	Connector 4p m
1M52	2422 025 10769	Connector 9p m
1T01	3139 147 22161	Tuner UV1318S/A I H N-3
1U01▲	2422 086 11112	Fuse 1A T 125V
8220	3104 311 07291	Cable 12P/820/12P
8220	3104 311 08631	Cable 12P/480/12P
8303	3104 311 06511	Cable 10p/280/10p
8303	3104 311 06701	Cable 11P/180/11P
8307	3104 311 05691	Cable 5p/100/5p
8321	3104 311 08731	Cable POSI/100/POSI
8336▲	3104 311 03891	Cable 11P/340/11P
8336▲	3104 311 06991	Cable 11P/280/11P
8337	3104 311 08621	Cable 11P/220/11P
8346	3104 311 07401	Cable 11P/180/11P
8346	3104 311 08031	Cable 11P/480/11P
8349	3104 311 10631	Cable 4p/1000/4p
8352▲	3104 311 07941	Cable 9P/820/9P
8352	3104 311 10161	Cable 9p/1000/9p



2002	3198 034 02790	47pF 1% 50V 0402
2003	2238 780 15654	220nF 10% 16V 0805
2004	2238 780 15654	220nF 10% 16V 0805
2005	2238 586 59812	100nF 20% 50V 0603

2006	2238 586 59812	100nF 20% 50V 0603
2007	2238 586 59812	100nF 20% 50V 0603
2008	2238 586 59812	100nF 20% 50V 0603
2013	2020 021 91557	100μF 20% 16V
2016	4822 124 12095	100μF 20% 16V
2017	2238 586 59812	100nF 20% 50V 0603
2018	4822 126 14324	33pF 5% 50V 0402
2019	2238 586 59812	100nF 20% 50V 0603
2020	3198 035 02210	220pF 5% 50V 0402
2022	2238 586 59812	100nF 20% 50V 0603
2023	2238 586 59812	100nF 20% 50V 0603
2024	2238 586 59812	100nF 20% 50V 0603
2025	2238 586 59812	100nF 20% 50V 0603
2026	2238 586 59812	100nF 20% 50V 0603
2027	2238 586 59812	100nF 20% 50V 0603
2028	2238 586 59812	100nF 20% 50V 0603
2029	2238 586 59812	100nF 20% 50V 0603
2031	2238 586 59812	100nF 20% 50V 0603
2033	2238 869 15829	82pF 5% 50V 0402
2034	2238 869 15829	82pF 5% 50V 0402
2035	2238 869 15829	82pF 5% 50V 0402
2036	2238 869 15829	82pF 5% 50V 0402
2037	2238 869 15829	82pF 5% 50V 0402
2038	2238 586 59812	100nF 20% 50V 0603
2039	2238 586 59812	100nF 20% 50V 0603
2040	2238 586 59812	100nF 20% 50V 0603
2067	2238 586 59812	100nF 20% 50V 0603
2072	2238 586 59812	100nF 20% 50V 0603
2073	3198 017 44740	470nF 10V 0603
2074	2238 586 59812	100nF 20% 50V 0603
2075	2238 586 59812	100nF 20% 50V 0603
2305	2238 586 59812	100nF 20% 50V 0603
2316	2238 586 59812	100nF 20% 50V 0603
2322	2238 586 59812	100nF 20% 50V 0603
2350	2238 586 59812	100nF 20% 50V 0603
2351	2238 586 59812	100nF 20% 50V 0603
2352	2238 586 59812	100nF 20% 50V 0603
2356	2238 586 59812	100nF 20% 50V 0603
2357	2238 586 59812	100nF 20% 50V 0603
2358	3198 035 03230	3.3nF 5% 50V 0402
2359	3198 034 01590	15pF 1% 50V 0402
2360	3198 034 01580	1.5pF 1% 50V 0402
2361	3198 034 01280	1.2pF 1% 50V 0402
2362	2238 869 15109	10pF 5% 50V 0402
2365	2238 586 59812	100nF 20% 50V 0603
2366	2238 586 59812	100nF 20% 50V 0603
2367	2238 586 59812	100nF 20% 50V 0603
2368	2238 586 59812	100nF 20% 50V 0603
2369	2238 586 59812	100nF 20% 50V 0603
2370	2238 586 59812	100nF 20% 50V 0603
2371	3198 035 14720	4.7nF 5% 25V 0402
2372	2022 552 05679	1μF 10% 16V 0805
2373	2238 586 59812	100nF 20% 50V 0603
2374	2022 552 05679	1μF 10% 16V 0805
2375	2238 787 15641	22nF 5% 16V 0402
2376	2238 586 59812	100nF 20% 50V 0603
2377	2020 021 91557	100μF 20% 16V
2378	2238 586 59812	100nF 20% 50V 0603
2384	2238 586 59812	100nF 20% 50V 0603
2387	2022 552 05679	1μF 10% 16V 0805
2391	2238 586 59812	100nF 20% 50V 0603
2392	2022 552 05679	1μF 10% 16V 0805
2394	2022 552 05679	1μF 10% 16V 0805
2403	2238 586 59812	100nF 20% 50V 0603
2404	2022 552 05679	1μF 10% 16V 0805
2405	3198 035 14720	4.7nF 5% 25V 0402
2406	4822 117 13605	Jumper 0402
2409	2022 552 05679	1μF 10% 16V 0805
2410	2020 021 91557	100μF 20% 16V
2411	2238 586 59812	100nF 20% 50V 0603
2412	3198 035 14720	4.7nF 5% 25V 0402
2414	2020 021 91557	100μF 20% 16V
2415	2238 586 59812	100nF 20% 50V 0603
2416	2022 552 05679	1μF 10% 16V 0805
2417	4822 126 14583	470nF 10% 16V 0805
2418	3198 034 05680	5.6pF 1% 50V 0402
2425	2020 021 91557	100μF 20% 16V
2430	4822 126 14324	33pF 5% 50V 0402
2432	2238 586 59812	100nF 20% 50V 0603
2433	2238 586 59812	100nF 20% 50V 0603
2434	2238 586 59812	100nF 20% 50V 0603
2435	2020 552 96618	1nF 10% 50V 0402
2436	2022 552 05679	1μF 10% 16V 0805
2500	2022 552 05679	1μF 10% 16V 0805
2501	2020 552 94427	100pF 5% 50V
2502	2022 552 05679	1μF 10% 16V 0805
2503	2020 552 94427	100pF 5% 50V
2504	2022 552 05679	1μF 10% 16V 0805
2505	2022 552 05679	1μF 10% 16V 0805
2506	2238 586 59812	100nF 20% 50V 0603
2507	5322 126 11578	1nF 10% 50V 0603
2508	2022 552 05679	1μF 10% 16V 0805
2509	2238 586 59812	100nF 20% 50V 0603
2510	4822 126 14241	330pF 0603 50V

2511	2238 586 59812	100nF 20% 50V 0603
2512	2238 586 59812	100nF 20% 50V 0603
2513	2238 586 59812	100nF 20% 50V 0603
2515	2022 552 05679	1μF 10% 16V 0805
2516	2022 552 05679	1μF 10% 16V 0805
2517	2022 552 05679	1μF 10% 16V 0805
2707	3198 034 02790	47pF 1% 50V 0402
2709	2238 586 59812	100nF 20% 50V 0603
2710	2238 586 59812	100nF 20% 50V 0603
2711	2238 586 59812	100nF 20% 50V 0603
2712	2238 586 59812	100nF 20% 50V 0603
2716	2238 586 59812	100nF 20% 50V 0603
2717	2238 586 59812	100nF 20% 50V 0603
2721	2238 869 15101	100pF 5% 50V 0402
2722	2238 869 15101	100pF 5% 50V 0402
2723	2238 586 59812	100nF 20% 50V 0603
2725	2238 586 59812	100nF 20% 50V 0603
2726	2238 586 59812	100nF 20% 50V 0603
2727	2238 586 59812	100nF 20% 50V 0603
2728	2020 021 91854	10μF 20% 16V
2729	2238 586 59812	100nF 20% 50V 0603
2730	2020 021 91557	100μF 20% 16V
2731	2238 586 59812	100nF 20% 50V 0603
2732	2020 552 96618	1nF 10% 50V 0402
2733	2238 586 59812	100nF 20% 50V 0603
2734	2238 586 59812	100nF 20% 50V 0603
2735	2238 586 59812	100nF 20% 50V 0603
2736	2238 586 59812	100nF 20% 50V 0603
2738	2238 586 59812	100nF 20% 50V 0603
2739	2020 021 91557	100μF 20% 16V
2740	2238 787 15641	22nF 5% 16V 0402
2741	2238 787 15641	22nF 5% 16V 0402
2742	2238 787 15641	22nF 5% 16V 0402
2743	2238 586 59812	100nF 20% 50V 0603
2744	2238 586 59812	100nF 20% 50V 0603
2745	2238 586 59812	100nF 20% 50V 0603
2746	2238 586 59812	100nF 20% 50V 0603
2748	2238 586 59812	100nF 20% 50V 0603
2749	2238 586 59812	100nF 20% 50V 0603
2750	2020 552 96618	1nF 10% 50V 0402
2751	2020 552 96618	1nF 10% 50V 0402
2752	2020 552 96618	1nF 10% 50V 0402
2753	2020 552 96618	1nF 10% 50V 0402
2754	2020 552 96618	1nF 10% 50V 0402
2755	2020 552 96618	1nF 10% 50V 0402
2756	2020 552 96618	1nF 10% 50V 0402
2757	2238 787 15641	22nF 5% 16V 0402
2759	2020 552 96618	1nF 10% 50V 0402
2760	2238 787 15641	22nF 5% 16V 0402
2761	2238 787 15641	22nF 5% 16V 0402
2762	2238 787 15641	22nF 5% 16V 0402
2763	2238 787 15641	22nF 5% 16V 0402
2764	2238 787 15641	22nF 5% 16V 0402
2768	2238 787 15641	22nF 5% 16V 0402
2769	2020 552 96618	1nF 10% 50V 0402
2770	2020 552 96618	1nF 10% 50V 0402
2771	2020 552 96618	1nF 10% 50V 0402
2772	2238 787 15641	22nF 5% 16V 0402
2773	2020 552 96618	1nF 10% 50V 0402
2777	2020 552 96618	1nF 10% 50V 0402
2778	2020 552 96618	1nF 10% 50V 0402
2780	2020 552 96618	1nF 10% 50V 0402
2781	2020 552 96618	1nF 10% 50V 0402
2782	2020 552 96618	1nF 10% 50V 0402
2784	2238 787 15641	22nF 5% 16V 0402
2785	2238 787 15641	22nF 5% 16V 0402
2788	2238 586 59812	100nF 20% 50V 0603
2789	2238 586 59812	100nF 20% 50V 0603
2790	2238 586 59812	100nF 20% 50V 0603
2791	2238 586 59812	100nF 20% 50V 0603
2792	2238 586 59812	100nF 20% 50V 0603
2793	2238 586 59812	100nF 20% 50V 0603
2794	2020 552 96618	1nF 10% 50V 0402
2795	2020 552 96618	1nF 10% 50V 0402
2796	2020 552 96618	1nF 10% 50V 0402
2797	2020 552 96618	1nF 10% 50V 0402
2798	2020 552 96618	1nF 10% 50V 0402
2799	2020 552 96618	1nF 10% 50V 0402
2800	2238 586 59812	100nF 20% 50V 0603
2802	2238 586 59812	100nF 20% 50V 0603
2804	2238 586 59812	100nF 20% 50V 0603
2805	2020 552 96618	1nF 10% 50V 0402
2806	2238 586 59812	100nF 20% 50V 0603
2807	2238 586 59812	100nF 20% 50V 0603
2808	2020 552 96618	1nF 10% 50V 0402
2809	2020 552 96618	1nF 10% 50V 0402
2810	2238 586 59812	100nF 20% 50V 0603
2811	2238 586 59812	100nF 20% 50V 0603
2812	3198 031 02290	22Ω 5% 0.1W 0402
2813	2238 586 59812	100nF 20% 50V 0603
2817	2238 586 59812	100nF 20% 50V 0603
2819	2238 586 59812	100nF 20% 50V 0603
2821	2238 787 15641	22nF 5% 16V 0402
2822	2238 787 15641	22nF 5% 16V 0402

2823	2238 586 59812	100nF 20% 50V 0603	2A08	2022 552 05679	1µF 10% 16V 0805	2E24	4822 126 14519	22pF 5% 50V 0402
2824	2238 586 59812	100nF 20% 50V 0603	2A10	2238 586 59812	100nF 20% 50V 0603	2E25	3198 017 34730	47nF 16V 0603
2825	2238 586 59812	100nF 20% 50V 0603	2A11	2238 586 59812	100nF 20% 50V 0603	2E26	4822 126 14519	22pF 5% 50V 0402
2826	2238 586 59812	100nF 20% 50V 0603	2A12	2238 586 59812	100nF 20% 50V 0603	2E27	2238 586 59812	100nF 20% 50V 0603
2827	2238 586 59812	100nF 20% 50V 0603	2A13	2238 586 59812	100nF 20% 50V 0603	2E28	3198 017 34730	47nF 16V 0603
2829	2020 021 91557	100µF 20% 16V	2A14	2020 552 96618	1nF 10% 50V 0402	2E29	3198 017 33330	33nF 20% 16V 0603
2830	2238 586 59812	100nF 20% 50V 0603	2A15	2020 021 91557	100µF 20% 16V	2E34	3198 035 03320	3.3nF 5% 50V 0402
2831	2238 586 59812	100nF 20% 50V 0603	2A16	2238 586 59812	100nF 20% 50V 0603	2E35	2238 586 59812	100nF 20% 50V 0603
2832	2238 586 59812	100nF 20% 50V 0603	2A17	2020 552 96618	1nF 10% 50V 0402	2E39	2238 869 15109	10pF 5% 50V 0402
2833	2238 586 59812	100nF 20% 50V 0603	2A18	2020 021 91557	100µF 20% 16V	2E41	2238 586 59812	100nF 20% 50V 0603
2834	2238 586 59812	100nF 20% 50V 0603	2A19	3198 034 02790	47pF 1% 50V 0402	2E42	2020 552 96628	10nF 10% 16V 0402
2835	2238 586 59812	100nF 20% 50V 0603	2A20	2022 552 05679	1µF 10% 16V 0805	2E43	2238 586 59812	100nF 20% 50V 0603
2836	2238 586 59812	100nF 20% 50V 0603	2A21	2238 586 59812	100nF 20% 50V 0603	2E49	2238 586 59812	100nF 20% 50V 0603
2837	2238 869 15101	100pF 5% 50V 0402	2A22	2238 586 59812	100nF 20% 50V 0603	2E50	4822 124 81058	47µF 20% 4V
2838	2238 869 15101	100pF 5% 50V 0402	2A23	2238 586 59812	100nF 20% 50V 0603	2E51	2022 552 05679	1µF 10% 16V 0805
2843	2238 586 59812	100nF 20% 50V 0603	2A24	2238 586 59812	100nF 20% 50V 0603	2E52	2238 586 59812	100nF 20% 50V 0603
2844	2238 586 59812	100nF 20% 50V 0603	2A25	2238 869 15101	100pF 5% 50V 0402	2E54	2238 586 59812	100nF 20% 50V 0603
2845	2238 586 59812	100nF 20% 50V 0603	2A26	2022 552 05679	1µF 10% 16V 0805	2E55	2022 552 05679	1µF 10% 16V 0805
2846	2238 586 59812	100nF 20% 50V 0603	2A27	2020 552 96618	1nF 10% 50V 0402	2E56	2020 552 96628	10nF 10% 16V 0402
2849	2238 586 59812	100nF 20% 50V 0603	2A29	2238 869 15101	100pF 5% 50V 0402	2E57	2020 552 96628	10nF 10% 16V 0402
2850	2238 586 59812	100nF 20% 50V 0603	2A30	2238 869 15101	100pF 5% 50V 0402	2E58	2020 552 96628	10nF 10% 16V 0402
2851	2238 586 59812	100nF 20% 50V 0603	2A31	2022 552 05679	1µF 10% 16V 0805	2E59	2020 552 96628	10nF 10% 16V 0402
2852	2238 586 59812	100nF 20% 50V 0603	2A32	2238 869 15101	100pF 5% 50V 0402	2E62	2238 586 59812	100nF 20% 50V 0603
2853	2238 586 59812	100nF 20% 50V 0603	2A33	2238 586 59812	100nF 20% 50V 0603	2E65	2238 586 59812	100nF 20% 50V 0603
2854	2238 586 59812	100nF 20% 50V 0603	2A34	2238 586 59812	100nF 20% 50V 0603	2E66	2238 586 59812	100nF 20% 50V 0603
2855	2238 586 59812	100nF 20% 50V 0603	2A35	2020 552 96618	1nF 10% 50V 0402	2E67	2238 586 59812	100nF 20% 50V 0603
2856	2238 586 59812	100nF 20% 50V 0603	2A36	2238 869 15101	100pF 5% 50V 0402	2E68	2020 552 96628	10nF 10% 16V 0402
2857	2238 586 59812	100nF 20% 50V 0603	2A37	2238 869 15101	100pF 5% 50V 0402	2E69	2020 552 96628	10nF 10% 16V 0402
2858	2238 586 59812	100nF 20% 50V 0603	2A38	2022 552 05679	1µF 10% 16V 0805	2E70	2020 552 96628	10nF 10% 16V 0402
2859	2238 586 59812	100nF 20% 50V 0603	2A39	2022 552 05679	1µF 10% 16V 0805	2E71	2020 552 96628	10nF 10% 16V 0402
2860	2238 586 59812	100nF 20% 50V 0603	2A40	2238 586 59812	100nF 20% 50V 0603	2E72	2238 586 59812	100nF 20% 50V 0603
2861	2238 586 59812	100nF 20% 50V 0603	2A41	2020 021 91854	10µF 20% 16V	2E73	2238 586 59812	100nF 20% 50V 0603
2862	2238 586 59812	100nF 20% 50V 0603	2A42	2020 021 91854	10µF 20% 16V	2E74	2238 586 59812	100nF 20% 50V 0603
2863	2238 586 59812	100nF 20% 50V 0603	2A43	2020 021 91854	10µF 20% 16V	2E75	2238 586 59812	100nF 20% 50V 0603
2864	2238 586 59812	100nF 20% 50V 0603	2A44	2238 586 59812	100nF 20% 50V 0603	2E77	2238 586 59812	100nF 20% 50V 0603
2865	2238 586 59812	100nF 20% 50V 0603	2A45	2238 586 59812	100nF 20% 50V 0603	2E78	2238 586 59812	100nF 20% 50V 0603
2866	2238 586 59812	100nF 20% 50V 0603	2A46	2022 552 05679	1µF 10% 16V 0805	2E79	2238 586 59812	100nF 20% 50V 0603
2867	2238 586 59812	100nF 20% 50V 0603	2A47	2022 552 05679	1µF 10% 16V 0805	2E80	2238 586 59812	100nF 20% 50V 0603
2868	2238 586 59812	100nF 20% 50V 0603	2A49	2022 552 05679	1µF 10% 16V 0805	2E81	2022 552 05679	1µF 10% 16V 0805
2869	2238 586 59812	100nF 20% 50V 0603	2A50	2020 552 96618	1nF 10% 50V 0402	2E82	2238 586 59812	100nF 20% 50V 0603
2870	2238 586 59812	100nF 20% 50V 0603	2A53	2022 552 05679	1µF 10% 16V 0805	2E83	2238 586 59812	100nF 20% 50V 0603
2871	2020 021 91557	100µF 20% 16V	2A54	2020 552 96618	1nF 10% 50V 0402	2E84	2238 586 59812	100nF 20% 50V 0603
2872	2238 586 59812	100nF 20% 50V 0603	2A56	2022 552 05679	1µF 10% 16V 0805	2E86	2238 586 59812	100nF 20% 50V 0603
2873	2238 586 59812	100nF 20% 50V 0603	2A59	2022 552 05679	1µF 10% 16V 0805	2E87	4822 124 12095	100µF 20% 16V
2874	2238 586 59812	100nF 20% 50V 0603	2A62	2022 552 05679	1µF 10% 16V 0805	2E93	2238 586 59812	100nF 20% 50V 0603
2875	2238 586 59812	100nF 20% 50V 0603	2A79	2238 586 59812	100nF 20% 50V 0603	2E94	2238 586 59812	100nF 20% 50V 0603
2876	2238 586 59812	100nF 20% 50V 0603	2A91	2238 869 15101	100pF 5% 50V 0402	2E96	2238 869 15101	100pF 5% 50V 0402
2877	2238 586 59812	100nF 20% 50V 0603	2A92	2022 552 05679	1µF 10% 16V 0805	2E97	2238 869 15101	100pF 5% 50V 0402
2878	2238 586 59812	100nF 20% 50V 0603	2A95	3198 035 02210	220pF 5% 50V 0402	2E98	2238 869 15101	100pF 5% 50V 0402
2879	2238 586 59812	100nF 20% 50V 0603	2A99	2022 552 05679	1µF 10% 16V 0805	2E99	4822 124 81058	47µF 20% 4V
2880	2238 586 59812	100nF 20% 50V 0603	2AA5	2238 869 15101	100pF 5% 50V 0402	2I00	2238 869 15101	100pF 5% 50V 0402
2881	3198 034 02790	47pF 1% 50V 0402	2AA6	2020 552 96618	1nF 10% 50V 0402	2I11	2022 552 05679	1µF 10% 16V 0805
2882	2238 586 59812	100nF 20% 50V 0603	2AA7	2020 552 96618	1nF 10% 50V 0402	2I12	4822 126 14585	100nF 10% 0805 50V
2883	2238 586 59812	100nF 20% 50V 0603	2AA9	3198 034 05680	5.6pF 1% 50V 0402	2I15	2022 552 05679	1µF 10% 16V 0805
2884	2238 586 59812	100nF 20% 50V 0603	2AB0	3198 034 05680	5.6pF 1% 50V 0402	2I16	2238 869 15101	100pF 5% 50V 0402
2885	2238 586 59812	100nF 20% 50V 0603	2AB2	2020 552 96618	1nF 10% 50V 0402	2I17	2238 869 15101	100pF 5% 50V 0402
2886	2238 586 59812	100nF 20% 50V 0603	2AB3	2022 552 05679	1µF 10% 16V 0805	2I18	2238 869 15101	100pF 5% 50V 0402
2887	2238 586 59812	100nF 20% 50V 0603	2AB4	2022 552 05679	1µF 10% 16V 0805	2I19	2238 869 15101	100pF 5% 50V 0402
2888	2238 586 59812	100nF 20% 50V 0603	2AB5	2020 021 91854	10µF 20% 16V	2I20	3198 035 03310	330pF 5% 50V 0402
2889	2020 021 91557	100µF 20% 16V	2AB6	2020 552 96618	1nF 10% 50V 0402	2I21	2238 869 15101	100pF 5% 50V 0402
2890	2238 586 59812	100nF 20% 50V 0603	2AB7	2020 552 96618	1nF 10% 50V 0402	2I22	2238 869 15101	100pF 5% 50V 0402
2891	2238 586 59812	100nF 20% 50V 0603	2AB8	2022 552 05679	1µF 10% 16V 0805	2I23	2238 869 15101	100pF 5% 50V 0402
2892	2238 586 59812	100nF 20% 50V 0603	2AF3	4822 124 12095	100µF 20% 16V	2I24	2238 869 15101	100pF 5% 50V 0402
2893	2238 586 59812	100nF 20% 50V 0603	2AF4	2238 586 59812	100nF 20% 50V 0603	2I25	3198 035 03310	330pF 5% 50V 0402
2894	2238 586 59812	100nF 20% 50V 0603	2C00	2238 586 59812	100nF 20% 50V 0603	2I26	2238 869 15101	100pF 5% 50V 0402
2895	2020 021 91854	10µF 20% 16V	2C01	2238 586 59812	100nF 20% 50V 0603	2I27	2238 869 15101	100pF 5% 50V 0402
2898	2020 021 91854	10µF 20% 16V	2C02	2238 586 59812	100nF 20% 50V 0603	2I30	2238 869 15101	100pF 5% 50V 0402
2899	2238 586 59812	100nF 20% 50V 0603	2D04	2020 552 96618	1nF 10% 50V 0402	2I32	4822 124 23002	10µF 16V
2900	3198 034 04790	27pF 1% 50V 0402	2D09	2238 586 59812	100nF 20% 50V 0603	2I33	2020 552 96618	1nF 10% 50V 0402
2901	3198 034 04790	27pF 1% 50V 0402	2D10	2022 552 05679	1µF 10% 16V 0805	2I34	4822 124 23002	10µF 16V
2902	3198 034 04790	27pF 1% 50V 0402	2D11	2020 552 96628	10nF 10% 16V 0402	2I36	2238 869 15101	100pF 5% 50V 0402
2915	3198 034 01510	150pF 1% 50V 0402	2D12	2020 552 96628	10nF 10% 16V 0402	2I38	2238 869 15101	100pF 5% 50V 0402
2916	3198 034 01510	150pF 1% 50V 0402	2E01	2238 586 59812	100nF 20% 50V 0603	2I40	2238 586 59812	100nF 20% 50V 0603
2917	2238 586 59812	100nF 20% 50V 0603	2E02	2238 586 59812	100nF 20% 50V 0603	2I46	2020 552 96618	1nF 10% 50V 0402
2919	2020 021 91557	100µF 20% 16V	2E03	2238 586 59812	100nF 20% 50V 0603	2I47	2020 552 96618	1nF 10% 50V 0402
2920	2238 586 59812	100nF 20% 50V 0603	2E04	2238 586 59812	100nF 20% 50V 0603	2I50	2238 586 59812	100nF 20% 50V 0603
2921	2238 586 59812	100nF 20% 50V 0603	2E06	2238 586 59812	100nF 20% 50V 0603	2I57	2238 869 15101	100pF 5% 50V 0402
2922	2020 552 96628	10nF 10% 16V 0402	2E07	2238 586 59812	100nF 20% 50V 0603	2I58	2238 869 15101	100pF 5% 50V 0402
2923	2020 552 96628	10nF 10% 16V 0402	2E08	2238 586 59812	100nF 20% 50V 0603	2I59	2238 586 59812	100nF 20% 50V 0603
2924	2238 586 59812	100nF 20% 50V 0603	2E09	2238 586 59812	1			

2I97	2238 586 59812	100nF 20% 50V 0603	2L31	3198 017 34730	47nF 16V 0603	2Y38	2238 869 15101	100pF 5% 50V 0402
2I98	2238 586 59812	100nF 20% 50V 0603	2L32	3198 035 03320	3.3nF 5% 50V 0402	2Y39	2238 869 15101	100pF 5% 50V 0402
2I99	4822 124 23002	10µF 16V	2L33	2238 586 59812	100nF 20% 50V 0603	2Y40	2238 869 15101	100pF 5% 50V 0402
2IA0	4822 124 23002	10µF 16V	2L34	2238 586 59812	100nF 20% 50V 0603	2Y41	2238 869 15101	100pF 5% 50V 0402
2IA1	4822 124 23002	10µF 16V	2L51	4822 124 23237	22µF 6.3V	2Y42	2238 869 15101	100pF 5% 50V 0402
2IA2	4822 124 23002	10µF 16V	2L52	3198 017 34730	47nF 16V 0603	2Y43	2238 869 15101	100pF 5% 50V 0402
2IA3	2020 552 96618	1nF 10% 50V 0402	2L54	3198 017 34730	47nF 16V 0603	2Y49	2238 869 15101	100pF 5% 50V 0402
2IA4	4822 126 14585	100nF 10% 0805 50V	2L56	2020 552 96618	1nF 10% 50V 0402	2Y50	2238 869 15101	100pF 5% 50V 0402
2IA5	2020 021 91557	100µF 20% 16V	2L57	3198 017 34730	47nF 16V 0603	2Y51	2238 869 15101	100pF 5% 50V 0402
2IA9	2020 021 91557	100µF 20% 16V	2L58	4822 124 23237	22µF 6.3V	2Y52	2238 787 15641	22nF 5% 16V 0402
2IB0	2238 586 59812	100nF 20% 50V 0603	2L60	3198 034 04790	27pF 1% 50V 0402	2Y53	2238 869 15101	100pF 5% 50V 0402
2IB3	2238 586 59812	100nF 20% 50V 0603	2P80	4822 124 12095	100µF 20% 16V	2Z44	4822 126 14519	22pF 5% 50V 0402
2IB5	2022 552 05679	1µF 10% 16V 0805	2P81	2238 586 59812	100nF 20% 50V 0603	2Z45	4822 126 14519	22pF 5% 50V 0402
2IB8	2238 586 59812	100nF 20% 50V 0603	2T01	3198 032 28210	220µF 20% 6.3V	2Z46	4822 126 14519	22pF 5% 50V 0402
2IB9	2238 586 59812	100nF 20% 50V 0603	2T04	2238 586 15641	22nF 10% 50V 0603	2Z47	4822 126 14519	22pF 5% 50V 0402
2IC0	4822 124 23002	10µF 16V	2T05	3198 032 28210	220µF 20% 6.3V	2Z48	4822 126 14519	22pF 5% 50V 0402
2IC1	4822 124 23002	10µF 16V	2T06	2020 552 96628	10nF 10% 16V 0402	2Z49	4822 126 14519	22pF 5% 50V 0402
2IC3	2238 586 59812	100nF 20% 50V 0603	2T09	3198 017 34730	47nF 16V 0603	2Z50	4822 126 14519	22pF 5% 50V 0402
2IC5	2238 586 59812	100nF 20% 50V 0603	2T12	2238 586 59812	100nF 20% 50V 0603	2Z51	4822 126 14519	22pF 5% 50V 0402
2IC6	3198 034 04790	27pF 1% 50V 0402	2T13	2020 552 96628	10nF 10% 16V 0402	2Z52	4822 126 14519	22pF 5% 50V 0402
2IC7	3198 034 04790	27pF 1% 50V 0402	2T15	2022 552 05679	1µF 10% 16V 0805	2Z53	4822 126 14519	22pF 5% 50V 0402
2IC8	2022 552 05679	1µF 10% 16V 0805	2T21	2020 552 96683	220nF 10% 50V	2Z57	4822 117 13605	Jumper 0402
2IC9	4822 126 13883	220pF 5% 50V	2T22	2020 552 96683	220nF 10% 50V	2Z58	2020 552 96628	10nF 10% 16V 0402
2IE1	2238 586 59812	100nF 20% 50V 0603	2T60	3198 032 28210	220µF 20% 6.3V	2Z58	2238 869 15101	100pF 5% 50V 0402
2IE2	2238 586 59812	100nF 20% 50V 0603	2T62	2020 552 96683	220nF 10% 50V	2Z59	2238 869 15101	100pF 5% 50V 0402
2IE3	2022 552 05679	1µF 10% 16V 0805	2T63	2020 552 96683	220nF 10% 50V	2Z60	2238 869 15101	100pF 5% 50V 0402
2IE4	2238 586 59812	100nF 20% 50V 0603	2U03	2022 552 05679	1µF 10% 16V 0805	2Z61	2238 869 15101	100pF 5% 50V 0402
2IE5	2238 586 59812	100nF 20% 50V 0603	2U04	4822 126 14583	470nF 10% 16V 0805	2Z62	2238 869 15101	100pF 5% 50V 0402
2IE6	2238 586 59812	100nF 20% 50V 0603	2U05	2020 552 96618	1nF 10% 50V 0402			
2IE7	2022 552 05679	1µF 10% 16V 0805	2U06	2022 552 05635	22µF 10% 16V			
2IE8	2022 552 05679	1µF 10% 16V 0805	2U07	2238 869 15829	82pF 5% 50V 0402			
2IE9	2238 586 59812	100nF 20% 50V 0603	2U08	2022 552 05635	22µF 10% 16V			
2IF1	2238 586 59812	100nF 20% 50V 0603	2U09	2020 552 96618	1nF 10% 50V 0402			
2IF2	2238 586 59812	100nF 20% 50V 0603	2U10	2022 552 05635	22µF 10% 16V			
2IF3	2238 586 59812	100nF 20% 50V 0603	2U11	2020 552 96618	1nF 10% 50V 0402			
2IF4	4822 124 80151	47µF 16V	2U12	2020 552 96628	10nF 10% 16V 0402			
2IF5	2238 586 59812	100nF 20% 50V 0603	2U13	2238 780 15654	220nF 10% 16V 0805			
2IF8	4822 124 11946	22µF 20% 16V	2U14	4822 126 14583	470nF 10% 16V 0805			
2IF9	4822 124 11946	22µF 20% 16V	2U15	4822 124 12095	100µF 20% 16V			
2IG1	2238 586 59812	100nF 20% 50V 0603	2U16	3198 035 14720	4.7nF 5% 25V 0402			
2IG2	5322 124 41945	22µF 20% 35V	2U17	4822 126 14583	470nF 10% 16V 0805			
2IG3	2238 586 59812	100nF 20% 50V 0603	2U18	3198 034 01210	120pF 1% 50V 0402			
2IG4	2238 586 59812	100nF 20% 50V 0603	2U19	2238 586 59812	100nF 20% 50V 0603			
2IG5	2238 586 59812	100nF 20% 50V 0603	2U20	2022 552 05679	1µF 10% 16V 0805			
2IG6	2238 586 59812	100nF 20% 50V 0603	2U21	4822 126 14583	470nF 10% 16V 0805			
2IG7	2238 586 59812	100nF 20% 50V 0603	2U22	2022 552 05679	1µF 10% 16V 0805			
2IG8	2238 586 59812	100nF 20% 50V 0603	2U23	4822 124 12095	100µF 20% 16V			
2IG9	2238 586 59812	100nF 20% 50V 0603	2U24	2020 552 96618	1nF 10% 50V 0402			
2IH1	2238 586 59812	100nF 20% 50V 0603	2U25	2238 586 59812	100nF 20% 50V 0603			
2IH2	2238 586 59812	100nF 20% 50V 0603	2U26	2238 586 59812	100nF 20% 50V 0603			
2IH3	2020 552 96618	1nF 10% 50V 0402	2U27	3198 035 26820	6.8nF 10% 16V 0402			
2IH4	2022 552 05679	1µF 10% 16V 0805	2U28	3198 035 26820	6.8nF 10% 16V 0402			
2IH5	2238 586 59812	100nF 20% 50V 0603	2U30	3198 034 01210	120pF 1% 50V 0402			
2IH6	4822 124 11946	22µF 20% 16V	2U31	4822 124 12095	100µF 20% 16V			
2IH7	4822 124 11946	22µF 20% 16V	2U32	3198 035 03320	3.3nF 5% 50V 0402			
2IH8	4822 124 11946	22µF 20% 16V	2U33	2022 552 05679	1µF 10% 16V 0805			
2IH9	4822 124 11946	22µF 20% 16V	2U34	2238 787 15641	22nF 5% 16V 0402			
2IJ4	2238 586 59812	100nF 20% 50V 0603	2U35	2022 552 05679	1µF 10% 16V 0805			
2IJ8	2022 552 05679	1µF 10% 16V 0805	2U36	2238 586 59812	100nF 20% 50V 0603			
2IJ9	2022 552 05679	1µF 10% 16V 0805	2U37	2020 552 96623	2.2nF 10% 50V 0402			
2IK1	2238 780 15654	220nF 10% 16V 0805	2U39	2238 586 59812	100nF 20% 50V 0603			
2IK5	2238 586 59812	100nF 20% 50V 0603	2U40	2020 552 96623	2.2nF 10% 50V 0402			
2IK6	2238 586 59812	100nF 20% 50V 0603	2U41	3198 035 26820	6.8nF 10% 16V 0402			
2IK7	2238 586 59812	100nF 20% 50V 0603	2U42	3198 017 34730	47nF 16V 0603			
2ILO	2238 869 15109	10pF 5% 50V 0402	2V11	3198 035 04710	470pF 50V 0402			
2IN8	2238 586 59812	100nF 20% 50V 0603	2V12	3198 035 04710	470pF 50V 0402			
2IN9	2238 586 59812	100nF 20% 50V 0603	2Y00	2238 869 15101	100pF 5% 50V 0402			
2L00	4822 124 23237	22µF 6.3V	2Y01	2238 869 15101	100pF 5% 50V 0402			
2L01	2238 586 59812	100nF 20% 50V 0603	2Y02	2238 869 15101	100pF 5% 50V 0402			
2L02	2238 586 59812	100nF 20% 50V 0603	2Y03	2238 869 15101	100pF 5% 50V 0402			
2L03	2238 586 59812	100nF 20% 50V 0603	2Y04	2238 869 15101	100pF 5% 50V 0402			
2L04	2238 586 59812	100nF 20% 50V 0603	2Y07	2238 869 15101	100pF 5% 50V 0402			
2L05	2238 586 59812	100nF 20% 50V 0603	2Y09	2238 869 15101	100pF 5% 50V 0402			
2L06	2238 586 59812	100nF 20% 50V 0603	2Y10	2238 869 15101	100pF 5% 50V 0402			
2L07	2238 586 59812	100nF 20% 50V 0603	2Y12	2238 869 15101	100pF 5% 50V 0402			
2L08	2238 586 59812	100nF 20% 50V 0603	2Y13	2238 586 59812	100nF 20% 50V 0603			
2L09	2238 586 59812	100nF 20% 50V 0603	2Y14	2238 869 15101	100pF 5% 50V 0402			
2L10	2238 586 59812	100nF 20% 50V 0603	2Y15	2238 869 15101	100pF 5% 50V 0402			
2L11	2238 586 59812	100nF 20% 50V 0603	2Y16	2238 869 15101	100pF 5% 50V 0402			
2L12	2238 586 59812	100nF 20% 50V 0603	2Y17	2238 869 15101	100pF 5% 50V 0402			
2L13	2238 586 59812	100nF 20% 50V 0603	2Y18	2238 869 15101	100pF 5% 50V 0402			
2L14	2238 586 59812	100nF 20% 50V 0603	2Y19	2238 869 15101	100pF 5% 50V 0402			
2L15	2238 586 59812	100nF 20% 50V 0603	2Y23	2238 869 15101	100pF 5% 50V 0402			
2L16	2238 586 59812	100nF 20% 50V 0603	2Y25	2238 869 15101	100pF 5% 50V 0402			
2L17	2238 586 59812	100nF 20% 50V 0603	2Y26	2238 869 15101	100pF 5% 50V 0402			
2L19	4822 124 23237	22µF 6.3V	2Y27	2020 552 96618	1nF 10% 50V 0402			
2L20	2238 586 59812	100nF 20% 50V 0603	2Y28	2020 552 96618	1nF 10% 50V 0402			
2L21	2238 586 59812	100nF 20% 50V 0603	2Y29	2020 552 96618	1nF 10% 50V 0402			
2L25	2238 586 59812	100nF 20% 50V 0603	2Y30	4822 124 12095	100µF 20% 16V			
2L26	3198 017 33330	33nF 20% 16V 0603	2Y31	4822 124 12095	100µF 20% 16V			
2L27	3198 035 14720	4.7nF 5% 25V 0402	2Y32	2020 552 96618	1nF 10% 50V 0402			
2L28	3198 034 03990	39pF 1% 50V 0402	2Y33	2020 552 96618	1nF 10% 50V 0402			
2L29	3198 034 03990	39pF 1% 50V 0402	2Y34	2238 869 15101	100pF 5% 50V 0402			
2L30	3198 034 03990	39pF 1% 50V 0402	2Y37	2238 869 15101	100pF 5% 50V 0402			

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3001	3198 031 04720	4.7kΩ 5% 0402
3002	3198 031 04720	4.7kΩ 5% 0402
3003	4822 117 13525	24kΩ 1% 0.62W 0603
3005	4822 117 13606	10kΩ 5% 0.01W 0402
3006	4822 117 13543	470Ω 5% 0402
3007	2350 033 10471	4 x 470Ω 5%
3008	2350 033 10101	4 x 100Ω 5%
3009	3198 031 01810	180Ω 5% 0402
3010	4822 117 13606	10kΩ 5% 0.01W 0402
3011	3198 031 04720	4.7kΩ 5% 0402
3012	2350 033 10101	4 x 100Ω 5%
3013	4822 117 13606	10kΩ 5% 0.01W 0402
3014	3198 031 06820	6.8kΩ 5% 0.01W 0402
3016	2322 706 71502	1.5kΩ 1% 0402
3017	3198 031 04720	4.7kΩ 5% 0402
3018	4822 117 13606	10kΩ 5% 0.01W 0402
3019	3198 031 04720	4.7kΩ 5% 0402
3020	4822 117 13606	10kΩ 5% 0.01W 0402
3021	4822 117 13606	10kΩ 5% 0.01W 0402
3024	3198 031 02730	27kΩ 5% 0402
3025	4822 117 13596	220Ω 5% 0.01W 0402
3026	3198 031 04720	4.7kΩ 5% 0402
3027	3198 031 04730	47Ω 5% 0402
3029	2350 033 10101	4 x 100Ω 5%
3031	2350 033 10101	4 x 100Ω 5%
3033	4822 117 11297	100kΩ 5% 0.1W
3034	2350 033 10101	4 x 100Ω 5%
3035	2350 033 10101	4 x 100Ω 5%
3038	4822 117 13606	10kΩ 5% 0.01W 0402
3039	4822 117 13597	330Ω 5% 0402 0.01W
3046	2350 033 10101	4 x 100Ω 5%
3048	2350 033 10101	4 x 100Ω 5%
3049	2350 033 10101	4 x 100Ω 5%
3050	2350 033 10101	4 x 100Ω 5%
3051	2350 033 10101	4 x 100Ω 5%
3052	2350 033 10101	4 x 100Ω 5%
3053	4822 117 13606	10kΩ 5% 0.01W 0402
3054	2350 033 10101	4 x 100Ω 5%
3055	2350 033 10101	4 x 100Ω 5%
3056	2350 033 10101	4 x 100Ω 5%
3057	2350 033 10101	4 x 100Ω 5%
3061	2350 033 10101	4 x 100Ω 5%
3062	4822 117 13606	10kΩ 5% 0.01W 0402
3064	2350 033 10101	4 x 100Ω 5%
3065	3198 031 04720	4.7kΩ 5% 0402
3066	3198 031 04730	47Ω 5% 0402
3068	4822 051 30472	4.7Ω 5% 0.062W
3069	3198 031 01820	1.8kΩ 5% 0.01W 0402
3072	2350 033 10101	4 x 100Ω 5%
3073	2350 033 10471	4 x 470Ω 5%
3074	2350 033 10471	4 x 470Ω 5%
3075	2020 552 96628	10nF 10% 16V 0402
3076	2350 033 10471	4 x 470Ω 5%
3077	3198 031 04720	4.7kΩ 5% 0402
3078	2350 033 10471	4 x 470Ω 5%
3079	3198 031 01820	1.8kΩ 5% 0.01W 0402
3080	4822 117 13606	10kΩ 5% 0.01W 0402
3081	4822 117 13543	470Ω 5% 0402
3082	2350 033 10101	4 x 100Ω 5%
3083	2350 033 10101	4 x 100Ω 5%
3084	4822 117 13606	10kΩ 5% 0.01W 0402
3085	2350 033 10101	4 x 100Ω 5%

3086	2350 033 10101	4 x 100Ω 5%	3728	3198 031 01510	150Ω 5% 0.01W 0402	3861	3198 031 01090	10Ω 5% 0.01W 0402
3087	4822 117 13545	100Ω 1% 0402	3729	4822 117 13605	Jumper 0402	3864	4822 117 13545	100Ω 1% 0402
3088	3198 031 01820	1.8kΩ 5% 0.01W 0402	3732	3198 031 04730	47Ω 5% 0402	3865	4822 117 13545	100Ω 1% 0402
3089	4822 117 13545	100Ω 1% 0402	3733	4822 117 13548	1kΩ 5% 0402	3867	4822 117 13545	100Ω 1% 0402
3090	2350 033 10471	4 x 470Ω 5%	3734	4822 117 13545	100Ω 1% 0402	3868	4822 117 13545	100Ω 1% 0402
3092	3198 031 01820	1.8kΩ 5% 0.01W 0402	3736	4822 117 13545	100Ω 1% 0402	3869	4822 117 13545	100Ω 1% 0402
3093	4822 117 13606	10kΩ 5% 0.01W 0402	3737	4822 117 13548	1kΩ 5% 0402	3870	4822 117 13545	100Ω 1% 0402
3097	4822 117 13543	470Ω 5% 0402	3738	4822 117 13548	1kΩ 5% 0402	3871	4822 117 13545	100Ω 1% 0402
3099	2350 033 10471	4 x 470Ω 5%	3739	3198 031 01230	12kΩ 5% 0402	3872	4822 117 13545	100Ω 1% 0402
3100	4822 117 13596	220Ω 5% 0.01W 0402	3740	3198 031 04720	4.7kΩ 5% 0402	3873	4822 117 13545	100Ω 1% 0402
3101	4822 117 13596	220Ω 5% 0.01W 0402	3742	4822 117 13601	22kΩ 5% 0402	3874	4822 117 13545	100Ω 1% 0402
3102	2350 033 10101	4 x 100Ω 5%	3743	4822 117 13606	10kΩ 5% 0.01W 0402	3880	3198 031 04730	47Ω 5% 0402
3103	4822 117 13543	470Ω 5% 0402	3746	3198 031 03920	3.9kΩ 5% 0402	3881	3198 031 04730	47Ω 5% 0402
3304	2322 750 63908	3.9Ω 5% Fuse 1206	3747	3198 031 04730	47Ω 5% 0402	3882	3198 031 04730	47Ω 5% 0402
3370	4822 117 13545	100Ω 1% 0402	3748	2322 705 70124	120kΩ 5% 0402	3883	3198 031 04730	47Ω 5% 0402
3371	4822 117 13546	47Ω 5% 0402	3749	3198 031 03920	3.9kΩ 5% 0402	3884	3198 031 04730	47Ω 5% 0402
3372	4822 117 13543	470Ω 5% 0402	3750	3198 031 03920	3.9kΩ 5% 0402	3885	4822 117 13548	1kΩ 5% 0402
3376	4822 117 13545	100Ω 1% 0402	3751	3198 031 03320	3.3kΩ 5% 0402	3886	4822 117 13548	1kΩ 5% 0402
3377	4822 117 13545	100Ω 1% 0402	3752	4822 117 13605	Jumper 0402	3887	4822 117 13548	1kΩ 5% 0402
3378	3198 031 01530	15kΩ 5% 0.01W 0402	3753	4822 117 13605	Jumper 0402	3888	4822 117 13548	1kΩ 5% 0402
3380	4822 117 13545	100Ω 1% 0402	3754	4822 117 13545	100Ω 1% 0402	3889	4822 117 13548	1kΩ 5% 0402
3382	4822 117 13543	470Ω 5% 0402	3755	3198 031 04720	4.7kΩ 5% 0402	3890	4822 117 13548	1kΩ 5% 0402
3385	4822 117 13543	470Ω 5% 0402	3756	4822 117 13606	10kΩ 5% 0.01W 0402	3891	4822 117 13548	1kΩ 5% 0402
3393	4822 117 11297	100kΩ 5% 0.1W	3757	3198 031 01510	150Ω 5% 0.01W 0402	3894	3198 031 01510	150Ω 5% 0.01W 0402
3400▲	4822 117 11152	4.7Ω 5%	3758	3198 031 04720	4.7kΩ 5% 0402	3896	4822 117 13605	Jumper 0402
3402▲	2322 750 63908	3.9Ω 5% Fuse 1206	3759	4822 117 13596	220Ω 5% 0.01W 0402	3900	3198 031 06890	68Ω 5% 0402
3405	4822 117 13548	1kΩ 5% 0402	3762	3198 031 06890	68Ω 5% 0402	3901	3198 031 06890	68Ω 5% 0402
3408	4822 117 13545	100Ω 1% 0402	3763	3198 031 06890	68Ω 5% 0402	3902	3198 031 06890	68Ω 5% 0402
3411	3198 031 02720	2.7kΩ 5% 0.01W 0402	3764	3198 031 06890	68Ω 5% 0402	3903	4822 117 11297	100kΩ 5% 0.1W
3412▲	4822 117 11152	4.7Ω 5%	3766	4822 117 13548	1kΩ 5% 0402	3905	3198 031 04720	4.7kΩ 5% 0402
3413	3198 031 02710	270Ω 5% 0.1W 0402	3767	3198 031 06890	68Ω 5% 0402	3909	4822 117 13545	100Ω 1% 0402
3414	3198 031 04720	4.7kΩ 5% 0402	3768	3198 031 06890	68Ω 5% 0402	3911	2350 033 11689	4x 68Ω 5% Netw.
3415	4822 117 13602	2.2kΩ 5% 0.01W 0402	3769	3198 031 06890	68Ω 5% 0402	3912	2350 033 11689	4x 68Ω 5% Netw.
3418	3198 031 03910	390Ω 1% 0402	3770	3198 031 06890	68Ω 5% 0402	3913	2350 033 11229	4x 22Ω 5% Netw.
3419	3198 031 03390	33Ω 1% 0402	3771	3198 031 07590	75Ω 5% 0402	3914	2350 033 11229	4x 22Ω 5% Netw.
3422	4822 117 13548	1kΩ 5% 0402	3772	3198 031 07590	75Ω 5% 0402	3915	2350 033 11229	4x 22Ω 5% Netw.
3435	3198 031 04720	4.7kΩ 5% 0402	3773	3198 031 07590	75Ω 5% 0402	3916	2350 033 11229	4x 22Ω 5% Netw.
3436	3198 031 01810	180Ω 5% 0402	3774	3198 031 06890	68Ω 5% 0402	3917	2350 033 11229	4x 22Ω 5% Netw.
3437	4822 117 13543	470Ω 5% 0402	3775	3198 031 06890	68Ω 5% 0402	3918	3198 031 06890	68Ω 5% 0402
3439	4822 117 13597	330Ω 5% 0402 0.01W	3776	3198 031 07590	75Ω 5% 0402	3919	3198 031 06890	68Ω 5% 0402
3441	3198 031 05620	5.6kΩ 5% 0.01W 0402	3777	3198 031 06890	68Ω 5% 0402	3921	3198 031 06890	68Ω 5% 0402
3445	4822 117 13543	470Ω 5% 0402	3778	3198 031 04720	4.7kΩ 5% 0402	3922	4822 117 13596	220Ω 5% 0.01W 0402
3463	3198 031 04720	4.7kΩ 5% 0402	3779	3198 031 06890	68Ω 5% 0402	3923	3198 031 06810	680Ω 5% 0.01W 0402
3473	4822 117 13548	1kΩ 5% 0402	3780	3198 031 06890	68Ω 5% 0402	3924	4822 117 13596	220Ω 5% 0.01W 0402
3474	3198 031 01090	10Ω 5% 0.01W 0402	3781	3198 031 06890	68Ω 5% 0402	3927	4822 117 13596	220Ω 5% 0.01W 0402
3475▲	5322 117 11726	10Ω 5%	3782	4822 117 13548	1kΩ 5% 0402	3928	3198 031 06810	680Ω 5% 0.01W 0402
3500	4822 051 30101	100Ω 5% 0.062W	3784	3198 031 06890	68Ω 5% 0402	3929	4822 117 13596	220Ω 5% 0.01W 0402
3501	4822 051 30101	100Ω 5% 0.062W	3792	3198 031 01510	150Ω 5% 0.01W 0402	3930	4822 117 13596	220Ω 5% 0.01W 0402
3502	4822 051 30223	22kΩ 5% 0.062W	3793	4822 117 13602	2.2kΩ 5% 0.01W 0402	3931	4822 117 13596	220Ω 5% 0.01W 0402
3503	4822 051 30101	100Ω 5% 0.062W	3794	3198 031 07590	75Ω 5% 0402	3932	3198 031 06810	680Ω 5% 0.01W 0402
3504	4822 051 30101	100Ω 5% 0.062W	3795	3198 031 01510	150Ω 5% 0.01W 0402	3999	4822 051 30102	1kΩ 5% 0.062W
3505	4822 051 30223	22kΩ 5% 0.062W	3797	3198 031 04720	4.7kΩ 5% 0402	3A00	4822 117 13601	22kΩ 5% 0402
3506	4822 051 30759	75Ω 5% 0.062W	3800	3198 031 07590	75Ω 5% 0402	3A01	4822 117 13606	10kΩ 5% 0.01W 0402
3507	4822 051 30759	75Ω 5% 0.062W	3801	3198 031 01510	150Ω 5% 0.01W 0402	3A02	3198 031 04730	47Ω 5% 0402
3508	4822 051 30759	75Ω 5% 0.062W	3802	3198 031 01510	150Ω 5% 0.01W 0402	3A03▲	4822 117 13568	6.8Ω 5% 1206
3509	4822 051 30101	100Ω 5% 0.062W	3803	3198 031 06890	68Ω 5% 0402	3A04	4822 117 13601	22kΩ 5% 0402
3510	4822 051 30759	75Ω 5% 0.062W	3804	3198 031 06890	68Ω 5% 0402	3A05	4822 117 13601	22kΩ 5% 0402
3511	4822 051 30479	47Ω 5% 0.062W	3805	4822 117 13545	100Ω 1% 0402	3A06	4822 117 11297	100kΩ 5% 0.1W
3512	4822 051 30479	47Ω 5% 0.062W	3811	3198 031 07590	75Ω 5% 0402	3A07	4822 117 11297	100kΩ 5% 0.1W
3513	4822 051 30479	47Ω 5% 0.062W	3812	3198 031 07590	75Ω 5% 0402	3A09	4822 117 13601	22kΩ 5% 0402
3514	4822 051 30479	47Ω 5% 0.062W	3814	3198 031 07590	75Ω 5% 0402	3A11	4822 117 11297	100kΩ 5% 0.1W
3515	4822 051 30479	47Ω 5% 0.062W	3815	3198 031 07590	75Ω 5% 0402	3A12	3198 031 04730	47Ω 5% 0402
3516	4822 051 30479	47Ω 5% 0.062W	3817	3198 031 07590	75Ω 5% 0402	3A13	3198 031 04730	47Ω 5% 0402
3517	4822 117 12925	47kΩ 1% 0.063W 0603	3818	3198 031 07590	75Ω 5% 0402	3A14	3198 031 04730	47Ω 5% 0402
3522	4822 051 30272	2.7kΩ 5% 0.062W	3820	3198 031 04720	4.7kΩ 5% 0402	3A15	4822 117 11297	100kΩ 5% 0.1W
3523	4822 051 30223	22kΩ 5% 0.062W	3821	3198 031 03390	33Ω 1% 0402	3A16	4822 117 13545	100Ω 1% 0402
3524	4822 051 30479	47Ω 5% 0.062W	3823	3198 031 06890	68Ω 5% 0402	3A17	4822 117 13545	100Ω 1% 0402
3525	4822 051 30102	1kΩ 5% 0.062W	3826	4822 117 13545	100Ω 1% 0402	3A18	3198 031 06830	68kΩ 5% 0.01W 0402
3526	3198 021 38220	8.2kΩ 5% 0.062W 0603	3827	4822 117 13545	100Ω 1% 0402	3A19	4822 117 13545	100Ω 1% 0402
3526	5322 117 13056	8.2kΩ 1% 0.063W 0603	3829	4822 117 13545	100Ω 1% 0402	3A20	4822 117 11297	100kΩ 5% 0.1W
3527	4822 051 30683	68kΩ 5% 0.062W	3830	3198 031 06890	68Ω 5% 0402	3A21	3198 031 06830	68kΩ 5% 0.01W 0402
3528	4822 051 30223	22kΩ 5% 0.062W	3831	3198 031 06890	68Ω 5% 0402	3A22	4822 117 11297	100kΩ 5% 0.1W
3529	4822 051 30102	1kΩ 5% 0.062W	3832	3198 031 06890	68Ω 5% 0402	3A23	3198 031 06830	68kΩ 5% 0.01W 0402
3535	4822 051 30479	47Ω 5% 0.062W	3833	3198 031 06890	68Ω 5% 0402	3A24	3198 031 06810	680Ω 5% 0.01W 0402
3536	4822 051 30103	10kΩ 5% 0.062W	3834	3198 031 06890	68Ω 5% 0402	3A26	3198 031 06830	68kΩ 5% 0.01W 0402
3543	4822 051 30759	75Ω 5% 0.062W	3835	3198 031 06890	68Ω 5% 0402	3A27	3198 031 06820	6.8kΩ 5% 0.01W 0402
3599	4822 051 30102	1kΩ 5% 0.062W	3836	3198 031 06890	68Ω 5% 0402	3A28	3198 031 06820	6.8kΩ 5% 0.01W 0402
3700	3198 031 02290	22Ω 5% 0.1W 0402	3837	3198 031 06890	68Ω 5% 0402	3A40	3198 031 01830	18kΩ 5% 0.01W 0402
3701	4822 117 13548	1kΩ 5% 0402	3838	3198 031 06890	68Ω 5% 0402	3A45	3198 031 04730	47Ω 5% 0402
3702	3198 031 01090	10Ω 5% 0.01W 0402	3839	3198 031 06890	68Ω 5% 0402	3A46	3198 031 01530	15kΩ 5% 0.01W 0402
3706	4822 117 13545	100Ω 1% 0402	3840	3198 031 06890	68Ω 5% 0402	3A47	3198 031 04730	47Ω 5% 0402
3707	4822 117 13545	100Ω 1% 0402	3841	3198 031 06890	68Ω 5% 0402	3A49	3198 031 01830	18kΩ 5% 0.01W 0402
3709	4822 117 13545	100Ω 1% 0402	3842	3198 031 06890	68Ω 5% 0402	3A51	3198 031 01530	15kΩ 5% 0.01W 0402
3710	4822 117 13545	100Ω 1% 0402	3843	3198 031 06890	68Ω 5% 0402	3A52	3198 031 05630	56kΩ 5% 0402
3712	3198 031 04730	47Ω 5% 0402	3844	3198 031 06890	68Ω 5% 0402	3A53	3198 031 05630	56kΩ 5% 0402
3713	4822 117 13605	Jumper 0402	3845	3198 031 06890	68Ω 5% 0402	3A55	4822 117 13597	330Ω 5% 0402 0.01W
3714	4							

3C01	3198 031 01090	10Ω 5% 0.01W 0402	3I67	4822 051 30759	75Ω 5% 0.062W	3IN6	4822 117 13601	22kΩ 5% 0402
3C03	4822 117 13606	10kΩ 5% 0.01W 0402	3I68	4822 051 30101	100Ω 5% 0.062W	3IN8	3198 031 01090	10Ω 5% 0.01W 0402
3C04	4822 117 13606	10kΩ 5% 0.01W 0402	3I69	4822 051 30271	270Ω 5% 0.062W	3IO5	4822 117 13606	10kΩ 5% 0.01W 0402
3C05	4822 117 13543	470Ω 5% 0402	3I70	4822 051 30101	100Ω 5% 0.062W	3IO6	4822 117 13606	10kΩ 5% 0.01W 0402
3C08	4822 051 30103	10kΩ 5% 0.062W	3I71	4822 051 30271	270Ω 5% 0.062W	3IPO	3198 031 08220	8.2kΩ 5% 0.5W
3C10	4822 117 13545	100Ω 1% 0402	3I72	4822 051 30101	100Ω 5% 0.062W	3IP1	4822 117 13602	22kΩ 5% 0.01W 0402
3C11	4822 117 13545	100Ω 1% 0402	3I75	4822 051 30101	100Ω 5% 0.062W	3IP2	4822 117 13596	220Ω 5% 0.01W 0402
3C12	3198 031 06890	68Ω 5% 0402	3I76	4822 051 30101	100Ω 5% 0.062W	3IP3	4822 051 30759	75Ω 5% 0.062W
3E00	4822 117 13606	10kΩ 5% 0.01W 0402	3I77	4822 051 30759	75Ω 5% 0.062W	3IP4	3198 031 02710	270Ω 5% 0.1W 0402
3E01	4822 117 13548	1kΩ 5% 0402	3I78	4822 051 30759	75Ω 5% 0.062W	3IP5▲	4822 117 11748	Fuse 2.2Ω 5% 1206
3E02	4822 117 13548	1kΩ 5% 0402	3I79	4822 051 30101	100Ω 5% 0.062W	3IP6	4822 117 13548	1kΩ 5% 0402
3E03	4822 117 13548	1kΩ 5% 0402	3I80	4822 051 30101	100Ω 5% 0.062W	3IP7	3198 031 02720	2.7kΩ 5% 0.01W 0402
3E04	4822 117 13548	1kΩ 5% 0402	3I81	3198 031 08220	8.2kΩ 5% 0.5W	3IP8	4822 117 13548	1kΩ 5% 0402
3E05	3198 031 01520	1.2kΩ 5% 0.01W 0402	3I82	4822 051 30392	3.9Ω 5% 0.063W 0603	3IQ0	3198 031 01090	10Ω 5% 0.01W 0402
3E06	4822 117 13545	100Ω 1% 0402	3I83	4822 051 30101	100Ω 5% 0.062W	3IQ5	3198 031 04730	47Ω 5% 0402
3E07	4822 117 13545	100Ω 1% 0402	3I84	4822 051 30759	75Ω 5% 0.062W	3IQ6	4822 117 13545	100Ω 1% 0402
3E08	4822 117 13545	100Ω 1% 0402	3I86	4822 051 30759	75Ω 5% 0.062W	3IQ7	4822 117 13545	100Ω 1% 0402
3E11	4822 117 13543	470Ω 5% 0402	3I87	4822 051 30101	100Ω 5% 0.062W	3IQ8	3198 031 03320	3.3kΩ 5% 0402
3E12	4822 117 13543	470Ω 5% 0402	3I88	4822 051 30759	75Ω 5% 0.062W	3IQ9	4822 117 13548	1kΩ 5% 0402
3E14	4822 117 13548	1kΩ 5% 0402	3I89	4822 051 30271	270Ω 5% 0.062W	3IR1	3198 031 02710	270Ω 5% 0.1W 0402
3E16	3198 031 02720	2.7kΩ 5% 0.01W 0402	3I90	4822 051 30101	100Ω 5% 0.062W	3IR2	3198 031 04720	4.7kΩ 5% 0402
3E18	4822 117 13545	100Ω 1% 0402	3I91	4822 051 30271	270Ω 5% 0.062W	3IR3	3198 031 04720	4.7kΩ 5% 0402
3E19	4822 117 13545	100Ω 1% 0402	3I92	4822 051 30101	100Ω 5% 0.062W	3IR4	4822 117 13545	100Ω 1% 0402
3E37	4822 117 13545	100Ω 1% 0402	3I98	4822 117 13605	Jumper 0402	3IR5	4822 117 13546	47Ω 5% 0402
3E50	4822 117 13606	10kΩ 5% 0.01W 0402	3I99	4822 051 30271	270Ω 5% 0.062W	3IR6	4822 117 13546	47Ω 5% 0402
3E51	4822 117 13606	10kΩ 5% 0.01W 0402	3IA0	4822 051 30101	100Ω 5% 0.062W	3IR7	4822 117 13543	470Ω 5% 0402
3E52	4822 117 13606	10kΩ 5% 0.01W 0402	3IA2	4822 051 30101	100Ω 5% 0.062W	3IR8	3198 031 03320	3.3kΩ 5% 0402
3E53	4822 117 13606	10kΩ 5% 0.01W 0402	3IA3	4822 117 13601	22kΩ 5% 0402	3IR9	2322 706 71201	120Ω 1% 0402
3E54	4822 117 13546	47Ω 5% 0402	3IA4	4822 117 13548	1kΩ 5% 0402	3IS0	2322 706 71201	120Ω 1% 0402
3E55	4822 117 13606	10kΩ 5% 0.01W 0402	3IA5	4822 117 13548	1kΩ 5% 0402	3IS1	2322 706 71201	120Ω 1% 0402
3E56	4822 117 13603	33kΩ 5% 0402	3IA6	4822 117 13548	1kΩ 5% 0402	3IS2	4822 117 13545	100Ω 1% 0402
3E57	4822 117 11297	100kΩ 5% 0.1W	3IA7	4822 117 13548	1kΩ 5% 0402	3IS5	2322 706 71201	120Ω 1% 0402
3E58	4822 117 13546	47Ω 5% 0402	3IA8	4822 117 13548	1kΩ 5% 0402	3IT0	3198 031 04730	47Ω 5% 0402
3E59	4822 117 13606	10kΩ 5% 0.01W 0402	3IB1	4822 117 13606	10kΩ 5% 0.01W 0402	3IT1	3198 031 04730	47Ω 5% 0402
3E61	4822 117 13546	47Ω 5% 0402	3IB2	4822 117 13545	100Ω 1% 0402	3IT4	3198 031 04730	47Ω 5% 0402
3E62	4822 117 13548	1kΩ 5% 0402	3IB3	4822 117 13606	10kΩ 5% 0.01W 0402	3IT5	2322 706 71201	120Ω 1% 0402
3E63	4822 117 13606	10kΩ 5% 0.01W 0402	3IB4	4822 117 13601	22kΩ 5% 0402	3IT6	2322 706 71201	120Ω 1% 0402
3E64	4822 117 13606	10kΩ 5% 0.01W 0402	3IB5	4822 117 13601	22kΩ 5% 0402	3IT7	4822 117 13548	1kΩ 5% 0402
3E69	3198 031 04720	4.7kΩ 5% 0402	3IB6	4822 117 13548	1kΩ 5% 0402	3IT8	4822 117 13548	1kΩ 5% 0402
3E70	3198 031 04720	4.7kΩ 5% 0402	3IB7	4822 117 13597	330Ω 5% 0402 0.01W	3IT9	4822 117 13597	330Ω 5% 0402 0.01W
3E73	4822 117 13606	10kΩ 5% 0.01W 0402	3IBA	4822 117 13545	100Ω 1% 0402	3IU0▲	4822 117 11748	Fuse 2.2Ω 5% 1206
3E74	4822 117 13546	47Ω 5% 0402	3IBB	4822 117 13545	100Ω 1% 0402	3IV0	3198 031 08220	8.2kΩ 5% 0.5W
3E77	4822 117 13546	47Ω 5% 0402	3IC0	4822 117 13548	1kΩ 5% 0402	3IV1	4822 117 13548	1kΩ 5% 0402
3E78	4822 117 13546	47Ω 5% 0402	3IC1▲	4822 117 13574	1.5Ω 5% 1206	3IV2	4822 117 13543	470Ω 5% 0402
3E79	4822 117 13546	47Ω 5% 0402	3IC2	4822 117 13601	22kΩ 5% 0402	3IV3	4822 117 13548	1kΩ 5% 0402
3E80	4822 117 13546	47Ω 5% 0402	3IC3	4822 117 13601	22kΩ 5% 0402	3L03	4822 117 13545	100Ω 1% 0402
3E81	4822 117 13546	47Ω 5% 0402	3IC4	4822 117 13545	100Ω 1% 0402	3L04	4822 117 13545	100Ω 1% 0402
3E82	3198 031 01090	10Ω 5% 0.01W 0402	3IC5	4822 117 13596	220Ω 5% 0.01W 0402	3L05	4822 117 13545	100Ω 1% 0402
3E83	3198 031 01090	10Ω 5% 0.01W 0402	3IC6	4822 117 13545	100Ω 1% 0402	3L06	4822 117 13545	100Ω 1% 0402
3E84	3198 031 01090	10Ω 5% 0.01W 0402	3IC7	4822 117 13596	220Ω 5% 0.01W 0402	3L08	3198 031 02720	2.7kΩ 5% 0.01W 0402
3E85	3198 031 01090	10Ω 5% 0.01W 0402	3IC9	4822 117 13601	22kΩ 5% 0402	3L11	4822 117 13545	100Ω 1% 0402
3E86	3198 031 01090	10Ω 5% 0.01W 0402	3ID0	3198 031 04720	4.7kΩ 5% 0402	3L12	4822 117 13543	470Ω 5% 0402
3E88	4822 117 13546	47Ω 5% 0402	3ID1	3198 031 01540	150kΩ 5% 0402	3L28	4822 117 13543	470Ω 5% 0402
3E89	4822 117 13546	47Ω 5% 0402	3ID4	3198 031 01230	12kΩ 5% 0402	3L29	3198 031 01510	150Ω 5% 0.01W 0402
3E90	3198 031 06890	68Ω 5% 0402	3ID5	3198 031 01090	10Ω 5% 0.01W 0402	3L30	3198 031 01510	150Ω 5% 0.01W 0402
3E91	3198 031 03390	33Ω 1% 0402	3ID7	4822 117 11297	100kΩ 5% 0.1W	3L31	3198 031 01510	150Ω 5% 0.01W 0402
3I07	4822 117 13606	10kΩ 5% 0.01W 0402	3ID8	4822 117 11297	100kΩ 5% 0.1W	3L32	4822 117 13543	470Ω 5% 0402
3I08	4822 117 13597	330Ω 5% 0402 0.01W	3IE2	4822 117 13545	100Ω 1% 0402	3L33	4822 117 13543	470Ω 5% 0402
3I28	4822 117 13545	100Ω 1% 0402	3IE3	4822 117 13545	100Ω 1% 0402	3P65	4822 117 13545	100Ω 1% 0402
3I29	4822 051 30759	75Ω 5% 0.062W	3IE7	3198 031 01090	10Ω 5% 0.01W 0402	3P66	4822 117 13545	100Ω 1% 0402
3I30	4822 051 30759	75Ω 5% 0.062W	3IE9	4822 117 13601	22kΩ 5% 0402	3P67	3198 031 04720	4.7kΩ 5% 0402
3I31	4822 051 30759	75Ω 5% 0.062W	3IF0	4822 117 13545	100Ω 1% 0402	3P69	3198 031 04720	4.7kΩ 5% 0402
3I32	4822 117 13548	1kΩ 5% 0402	3IF5	4822 117 13601	22kΩ 5% 0402	3P70	3198 031 04720	4.7kΩ 5% 0402
3I33	4822 051 30101	100Ω 5% 0.062W	3IF6	4822 051 30101	100Ω 5% 0.062W	3P72	3198 031 04720	4.7kΩ 5% 0402
3I34	4822 117 13606	10kΩ 5% 0.01W 0402	3IF7	4822 051 30101	100Ω 5% 0.062W	3U01	4822 051 30102	1kΩ 5% 0.062W
3I35	4822 051 30101	100Ω 5% 0.062W	3IG1	3198 031 01090	10Ω 5% 0.01W 0402	3U02	4822 117 13548	1kΩ 5% 0402
3I36	4822 117 13601	22kΩ 5% 0402	3IG4	3198 031 01090	10Ω 5% 0.01W 0402	3U03	4822 117 13603	33kΩ 5% 0402
3I37	4822 117 13601	22kΩ 5% 0402	3IG7	3198 031 01090	10Ω 5% 0.01W 0402	3U04	4822 051 20121	120Ω 5% 0.1W
3I38	4822 117 13601	22kΩ 5% 0402	3IGE	4822 117 13606	10kΩ 5% 0.01W 0402	3U05	4822 117 13548	1kΩ 5% 0402
3I40	4822 051 30101	100Ω 5% 0.062W	3IGF	3198 031 04730	47Ω 5% 0402	3U06	4822 117 13543	470Ω 5% 0402
3I41	4822 117 13548	1kΩ 5% 0402	3IH1	3198 031 04730	47Ω 5% 0402	3U07	3198 031 02290	22Ω 5% 0.1W 0402
3I42	4822 117 13548	1kΩ 5% 0402	3IH2	3198 031 04730	47Ω 5% 0402	3U08	2322 706 71502	1.5kΩ 1% 0402
3I44	4822 117 13606	10kΩ 5% 0.01W 0402	3IH8	3198 031 04730	47Ω 5% 0402	3U09	3198 031 05620	5.6kΩ 5% 0.01W 0402
3I45	3198 031 04730	47Ω 5% 0402	3IH9	3198 031 04730	47Ω 5% 0402	3U10	4822 117 13596	220Ω 5% 0.01W 0402
3I46	4822 117 13545	100Ω 1% 0402	3IHA	4822 117 13545	100Ω 1% 0402	3U12	4822 117 13601	22kΩ 5% 0402
3I47	4822 117 13602	2.2kΩ 5% 0.01W 0402	3IHB	4822 117 13545	100Ω 1% 0402	3U13	4822 117 13606	10kΩ 5% 0.01W 0402
3I49	4822 117 13545	100Ω 1% 0402	3IHC	4822 117 13545	100Ω 1% 0402	3U14	4822 051 30102	1kΩ 5% 0.062W
3I50	4822 051 30271	270Ω 5% 0.062W	3IHG	3198 021 31820	1.8kΩ 5% 0.062W 0603	3U15	2322 706 73302	3.3kΩ 1% 0402
3I51	4822 051 30101	100Ω 5% 0.062W	3IIO	4822 117 13606	10kΩ 5% 0.01W 0402	3U17	3198 031 04780	4.7Ω 5% 0402
3I52	4822 051 30271	270Ω 5% 0.062W	3I11	4822 117 13601	22kΩ 5% 0402	3U18	2322 706 71002	1kΩ 1% 0402
3I53	4822 051 30101	100Ω 5% 0.062W	3I12	4822 117 13601	22kΩ 5% 0402	3U19	3198 031 04720	4.7kΩ 5% 0402
3I54	4822 051 30101	100Ω 5% 0.062W	3I13	3198 031 04730	47Ω 5% 0402	3U20	2322 706 71002	1kΩ 1% 0402
3I55	4822 051 30759	75Ω 5% 0.062W	3I14	3198 031 04730	47Ω 5% 0402	3U21	3198 031 04730	47Ω 5% 0402
3I56	4822 051 30101	100Ω 5% 0.062W	3I16	4822 117 13601	22kΩ 5% 0402	3U22	3198 031 02710	270Ω 5% 0.1W 0402
3I57	4822 051 30759	75Ω 5% 0.062W	3I17	4822 117 13601	22kΩ 5% 0402	3U23	3198 031 01090	10Ω 5% 0.01W 0402
3I58	4822 051 30101	100Ω						

3U33	4822 117 13606	10kΩ 5% 0.01W 0402	3Z50	4822 117 13545	100Ω 1% 0402	9A01	4822 117 13605	Jumper 0402
3U35	4822 117 13606	10kΩ 5% 0.01W 0402	3Z51	4822 117 13545	100Ω 1% 0402	9A04	4822 117 13605	Jumper 0402
3U36	4822 117 13602	2.2kΩ 5% 0.01W 0402	3Z52	4822 117 13545	100Ω 1% 0402	9A05	4822 117 13605	Jumper 0402
3U37	4822 117 13601	22kΩ 5% 0402	3Z54	4822 117 13545	100Ω 1% 0402	9A06	4822 117 13605	Jumper 0402
3U38	4822 117 13602	2.2kΩ 5% 0.01W 0402	3Z54	4822 117 13548	1kΩ 5% 0402	9A07	4822 117 13605	Jumper 0402
3U39	4822 117 13601	22kΩ 5% 0402	9001	4822 117 13605	Jumper 0402	9A22	4822 117 13605	Jumper 0402
3U40	3198 031 01540	150kΩ 5% 0402	9002	4822 117 13605	Jumper 0402	9A65	4822 117 13605	Jumper 0402
3U41	4822 117 13548	1kΩ 5% 0402	9007	4822 117 13605	Jumper 0402	9A67	4822 051 20008	Jumper 0805
3U42	4822 117 13606	10kΩ 5% 0.01W 0402	9010	4822 117 13605	Jumper 0402	9A71	4822 051 20008	Jumper 0805
3U43	4822 117 13601	22kΩ 5% 0402	9011▲	4822 117 13605	Jumper 0402	9C02	4822 117 13605	Jumper 0402
3U44	3198 031 01050	1MΩ 5% 0402	9012	4822 117 13605	Jumper 0402	9E60	4822 117 13605	Jumper 0402
3U45	3198 031 01050	1MΩ 5% 0402	9013	4822 117 13605	Jumper 0402	9E62	4822 117 13605	Jumper 0402
3U46	2322 706 74703	47kΩ 1% 0402	9023	4822 117 13605	Jumper 0402	9E65	4822 117 13605	Jumper 0402
3U51	9965 000 23109	22Ω 5% 0603	9024	4822 117 13605	Jumper 0402	9E66	4822 117 13605	Jumper 0402
3U52	4822 051 30102	1kΩ 5% 0.062W	9316	4822 117 13605	Jumper 0402	9E67	4822 117 13605	Jumper 0402
3U53	3198 031 01830	18kΩ 5% 0.01W 0402	9322	4822 117 13605	Jumper 0402	9E68	4822 117 13605	Jumper 0402
3U54	4822 117 13545	100Ω 1% 0402	9410	4822 117 13605	Jumper 0402	9E69	4822 117 13605	Jumper 0402
3U55	4822 051 30102	1kΩ 5% 0.062W	9413	4822 117 13605	Jumper 0402	9E70	4822 117 13605	Jumper 0402
3U56	3198 031 04720	4.7kΩ 5% 0402	9416	4822 117 13605	Jumper 0402	9E71	4822 117 13605	Jumper 0402
3U57	4822 117 13606	10kΩ 5% 0.01W 0402	9417	4822 117 13605	Jumper 0402	9E72	4822 117 13605	Jumper 0402
3U60	4822 117 13548	1kΩ 5% 0402	9418	4822 117 13605	Jumper 0402	9E73	4822 117 13605	Jumper 0402
3U61	4822 117 13606	10kΩ 5% 0.01W 0402	9419	4822 117 13605	Jumper 0402	9E74	4822 117 13605	Jumper 0402
3U62	4822 117 13548	1kΩ 5% 0402	9420	4822 117 13605	Jumper 0402	9E76	4822 117 13605	Jumper 0402
3U63	4822 117 13602	2.2kΩ 5% 0.01W 0402	9423	4822 117 13605	Jumper 0402	9E77	4822 117 13605	Jumper 0402
3U64	4822 117 13548	1kΩ 5% 0402	9424	4822 117 13605	Jumper 0402	9I00	4822 117 13605	Jumper 0402
3U65	4822 117 13548	1kΩ 5% 0402	9425	4822 117 13605	Jumper 0402	9I02	4822 117 13605	Jumper 0402
3U66	4822 117 13606	10kΩ 5% 0.01W 0402	9426	4822 117 13605	Jumper 0402	9I07	4822 117 13605	Jumper 0402
3U67	4822 117 13545	100Ω 1% 0402	9427	4822 117 13545	100Ω 1% 0402	9I15	4822 117 13605	Jumper 0402
3U68	4822 117 13606	10kΩ 5% 0.01W 0402	9428	4822 117 13605	Jumper 0402	9I28	4822 117 13605	Jumper 0402
3U69	4822 117 13548	1kΩ 5% 0402	9502	4822 051 30008	Jumper 0603	9I30	4822 117 13605	Jumper 0402
3U70	4822 051 30102	1kΩ 5% 0.062W	9508	4822 051 30008	Jumper 0603	9I31	4822 117 13605	Jumper 0402
3V01	3198 031 01810	180Ω 5% 0402	9521	4822 051 30008	Jumper 0603	9I32	4822 117 13605	Jumper 0402
3V02	3198 031 01810	180Ω 5% 0402	9524	4822 051 30008	Jumper 0603	9I33	4822 117 13605	Jumper 0402
3V17	3198 031 01810	180Ω 5% 0402	9702	4822 117 13605	Jumper 0402	9I34	4822 117 13605	Jumper 0402
3V19	3198 031 01810	180Ω 5% 0402	9704	4822 117 13605	Jumper 0402	9I35	4822 117 13605	Jumper 0402
3V20	3198 031 01810	180Ω 5% 0402	9706	4822 117 13605	Jumper 0402	9I39	4822 117 13605	Jumper 0402
3V21	2350 033 11689	4x 68Ω 5% Netw.	9707	2238 869 15189	18pF 5% 50V 0402	9I45	4822 117 13605	Jumper 0402
3V22	2350 033 11689	4x 68Ω 5% Netw.	9708	2238 869 15189	18pF 5% 50V 0402	9I49	4822 117 13605	Jumper 0402
3V23	2350 033 11689	4x 68Ω 5% Netw.	9709	2238 869 15189	18pF 5% 50V 0402	9I68	4822 117 13605	Jumper 0402
3V24	2350 033 11689	4x 68Ω 5% Netw.	9710	4822 117 13605	Jumper 0402	9I85	4822 117 13605	Jumper 0402
3V25	3198 031 01810	180Ω 5% 0402	9713	4822 117 13605	Jumper 0402	9IA5	4822 117 13605	Jumper 0402
3V26	3198 031 01810	180Ω 5% 0402	9714	4822 117 13605	Jumper 0402	9ID0	4822 117 13605	Jumper 0402
3V27	3198 031 01810	180Ω 5% 0402	9715	4822 117 13605	Jumper 0402	9ID1	4822 117 13605	Jumper 0402
3V28	3198 031 01810	180Ω 5% 0402	9716	4822 117 13605	Jumper 0402	9ID3	4822 117 13605	Jumper 0402
3V29	3198 031 01810	180Ω 5% 0402	9717	4822 117 13605	Jumper 0402	9ID5	4822 117 13605	Jumper 0402
3V30	3198 031 01810	180Ω 5% 0402	9718	4822 117 13605	Jumper 0402	9ID8	4822 117 13605	Jumper 0402
3V31	3198 031 01810	180Ω 5% 0402	9720	4822 117 13605	Jumper 0402	9ID9	4822 117 13605	Jumper 0402
3V32	3198 031 01810	180Ω 5% 0402	9721	4822 117 13605	Jumper 0402	9P69	4822 117 13605	Jumper 0402
3V33	3198 031 01810	180Ω 5% 0402	9722	4822 117 13605	Jumper 0402	9P70	4822 117 13605	Jumper 0402
3V34	3198 031 01810	180Ω 5% 0402	9723	4822 117 13605	Jumper 0402	9P71	4822 117 13605	Jumper 0402
3V35	4822 117 13545	100Ω 1% 0402	9727	4822 117 13605	Jumper 0402	9T01	4822 117 13601	22kΩ 5% 0402
3V36	4822 117 13545	100Ω 1% 0402	9728	4822 117 13605	Jumper 0402	9T04	4822 117 13605	Jumper 0402
3V37	4822 117 13545	100Ω 1% 0402	9730	4822 117 13605	Jumper 0402	9T07	4822 117 13605	Jumper 0402
3V38	4822 117 13545	100Ω 1% 0402	9732	4822 117 13605	Jumper 0402	9T08	4822 117 13605	Jumper 0402
3V39	3198 031 04720	4.7kΩ 5% 0402	9751	4822 117 13605	Jumper 0402	9T12	4822 117 13605	Jumper 0402
3V40	4822 117 13545	100Ω 1% 0402	9752	4822 117 13605	Jumper 0402	9T14	4822 117 13605	Jumper 0402
3V50	4822 117 13606	10kΩ 5% 0.01W 0402	9753	4822 117 13605	Jumper 0402	9T50	4822 117 13605	Jumper 0402
3V51	4822 117 13606	10kΩ 5% 0.01W 0402	9754	4822 117 13605	Jumper 0402	9Y00	3198 031 01090	10Ω 5% 0.01W 0402
3V52	4822 117 13602	2.2kΩ 5% 0.01W 0402	9755	4822 117 13605	Jumper 0402	9Y03	4822 117 13605	Jumper 0402
3V53	4822 117 13602	2.2kΩ 5% 0.01W 0402	9756	4822 117 13605	Jumper 0402	9Y05	4822 117 13605	Jumper 0402
3V54	4822 117 13606	10kΩ 5% 0.01W 0402	9757	4822 117 13605	Jumper 0402	9Y06	4822 117 13605	Jumper 0402
3V55	4822 117 13606	10kΩ 5% 0.01W 0402	9758	4822 117 13605	Jumper 0402	9Y09	4822 117 13605	Jumper 0402
3V56	4822 117 13545	100Ω 1% 0402	9760	4822 117 13605	Jumper 0402	9Y13	4822 117 13605	Jumper 0402
3Y04	4822 117 13602	2.2kΩ 5% 0.01W 0402	9761	4822 117 13605	Jumper 0402	9Y15	4822 117 13605	Jumper 0402
3Y05	4822 117 13545	100Ω 1% 0402	9762	4822 117 13605	Jumper 0402	9Y16	4822 117 13605	Jumper 0402
3Y07▲	4822 117 11151	1Ω 5%	9763	4822 117 13605	Jumper 0402			
3Y08	3198 031 03320	3.3kΩ 5% 0402	9765	4822 117 13605	Jumper 0402			
3Y08	4822 117 13545	100Ω 1% 0402	9766	4822 117 13605	Jumper 0402			
3Y09	4822 117 13545	100Ω 1% 0402	9772	4822 117 13605	Jumper 0402			
3Y10	4822 117 13545	100Ω 1% 0402	9773	4822 117 13605	Jumper 0402			
3Y11	4822 117 13545	100Ω 1% 0402	9774	4822 117 13605	Jumper 0402			
3Y12	4822 117 13545	100Ω 1% 0402	9775	4822 117 13605	Jumper 0402			
3Y14	3198 031 04720	4.7kΩ 5% 0402	9776	4822 117 13605	Jumper 0402			
3Y15	4822 117 13606	10kΩ 5% 0.01W 0402	9777	4822 117 13605	Jumper 0402			
3Y16	3198 031 04720	4.7kΩ 5% 0402	9800	4822 117 13605	Jumper 0402	5003	2422 549 43769	Bead 30Ω at 100MHz
3Y17	4822 117 13545	100Ω 1% 0402	9801	4822 117 13605	Jumper 0402	5401	3198 018 56880	6.8μH 10% 0603
3Y19	4822 117 13545	100Ω 1% 0402	9802	4822 117 13605	Jumper 0402	5404	4822 157 11506	Bead 120Ω at 100MHz

5761	4822 157 11716	Bead 30Ω at 100MHz	5Z03	2422 549 45325	Bead 67Ω at 100MHz	6168	4822 130 11416	PDZ6.8B
5762	4822 157 11716	Bead 30Ω at 100MHz	5Z04	2422 549 45325	Bead 67Ω at 100MHz	6169	4822 130 11416	PDZ6.8B
5763	4822 157 11716	Bead 30Ω at 100MHz	5Z05	2422 549 45325	Bead 67Ω at 100MHz	6170	4822 130 11416	PDZ6.8B
5764	4822 157 11716	Bead 30Ω at 100MHz				6175	4822 130 11416	PDZ6.8B
5767	4822 157 11716	Bead 30Ω at 100MHz				6177	4822 130 11416	PDZ6.8B
5768	4822 157 11716	Bead 30Ω at 100MHz				6190	4822 130 11416	PDZ6.8B
5769	4822 157 11716	Bead 30Ω at 100MHz				6191	4822 130 11416	PDZ6.8B
5770	4822 157 11716	Bead 30Ω at 100MHz				6192	4822 130 11416	PDZ6.8B
5771	4822 157 11716	Bead 30Ω at 100MHz				6193	4822 130 11416	PDZ6.8B
5772	4822 157 11716	Bead 30Ω at 100MHz				6199	4822 130 11423	PLVA2650A
5773	4822 157 11716	Bead 30Ω at 100MHz				61A0	9322 129 41685	BZM55-C12
5775	4822 157 11716	Bead 30Ω at 100MHz				61A7	4822 130 11397	BAS316
5777	4822 157 11716	Bead 30Ω at 100MHz				6T01	4822 130 11397	BAS316
5800	4822 157 11716	Bead 30Ω at 100MHz				6T03	4822 130 11397	BAS316
5801	4822 157 11716	Bead 30Ω at 100MHz				6T08	9340 548 71115	PDZ33B
5A00	2422 549 44197	Bead 220Ω at 100MHz				6U01	4822 130 11397	BAS316
5A01	2422 549 44197	Bead 220Ω at 100MHz				6U03	4822 130 11397	BAS316
5A02	2422 549 44197	Bead 220Ω at 100MHz				6U04	4822 130 11397	BAS316
5A03	2422 549 44197	Bead 220Ω at 100MHz				6U05	9322 129 41685	BZM55-C12
5A06	2422 549 44197	Bead 220Ω at 100MHz				6U06	9322 203 37685	BZG05C3V9
5A07	2422 549 44197	Bead 220Ω at 100MHz				6U07	4822 130 11416	PDZ6.8B
5A19	4822 157 11828	22μH 20% 0805				6U08	4822 130 80622	BAT54
5A38	2422 549 44197	Bead 220Ω at 100MHz				6U09	4822 130 80622	BAT54
5E00	4822 156 21729	Bead 1kΩ 100MHz 0805				6U10	4822 130 11522	UDZ15B
5E01	2422 549 42896	Bead 120Ω 100MHz				6U11	4822 130 11397	BAS316
5E02	4822 156 21729	Bead 1kΩ 100MHz 0805				6U12	9340 548 52115	PDZ5.1B
5E03	4822 156 21729	Bead 1kΩ 100MHz 0805				6U13	9340 548 58115	PDZ9.1B
5E50	4822 157 11499	Bead 60Ω at 100MHz				6U16	9340 548 52115	PDZ5.1B
5E51	2422 549 42896	Bead 120Ω 100MHz				6U17	4822 130 11416	PDZ6.8B
5E52	2422 549 43062	Bead 600Ω at 100MHz						
5E53	2422 536 00779	10μH 20%						
5E54	4822 157 11499	Bead 60Ω at 100MHz						
5E55	2422 549 43062	Bead 600Ω at 100MHz						
5E58	2422 549 43062	Bead 600Ω at 100MHz						
5I02	4822 156 21729	Bead 1kΩ 100MHz 0805						
5I04	3198 018 90050	Bead 1kΩ at 100MHz						
5I05	4822 157 11716	Bead 30Ω at 100MHz						
5I06	4822 157 11716	Bead 30Ω at 100MHz						
5I12	4822 157 11716	Bead 30Ω at 100MHz						
5I13	4822 157 11716	Bead 30Ω at 100MHz						
5I21	4822 157 11716	Bead 30Ω at 100MHz						
5I22	4822 157 11716	Bead 30Ω at 100MHz						
5I30	4822 157 11716	Bead 30Ω at 100MHz						
5I31	4822 157 11716	Bead 30Ω at 100MHz						
5I32	4822 157 11716	Bead 30Ω at 100MHz						
5I33	4822 157 11716	Bead 30Ω at 100MHz						
5I34	4822 157 11716	Bead 30Ω at 100MHz						
5I35	4822 157 11716	Bead 30Ω at 100MHz						
5I39	4822 157 11716	Bead 30Ω at 100MHz						
5I40	4822 157 11716	Bead 30Ω at 100MHz						
5I41	4822 157 11716	Bead 30Ω at 100MHz						
5I42	4822 156 21729	Bead 1kΩ 100MHz 0805						
5I45	4822 157 11716	Bead 30Ω at 100MHz						
5I46	4822 157 11716	Bead 30Ω at 100MHz						
5I47	4822 157 11716	Bead 30Ω at 100MHz						
5L02	3198 018 54770	0.47μF 10% 0603						
5L04	3198 018 54770	0.47μF 10% 0603						
5L06	3198 018 54770	0.47μF 10% 0603						
5L13	4822 156 21729	Bead 1kΩ 100MHz 0805						
5L14	4822 156 21729	Bead 1kΩ 100MHz 0805						
5L15	4822 156 21729	Bead 1kΩ 100MHz 0805						
5L16	4822 157 11716	Bead 30Ω at 100MHz						
5L17	4822 157 11716	Bead 30Ω at 100MHz						
5L18	4822 157 11716	Bead 30Ω at 100MHz						
5P51	4822 157 11716	Bead 30Ω at 100MHz						
5T20	4822 157 11716	Bead 30Ω at 100MHz						
5T22	4822 157 11716	Bead 30Ω at 100MHz						
5T25	2422 535 94134	10μH 20% 0805						
5U01	3104 308 20661	Transf. BD13118-02						
5U02	2422 536 00779	10μH 20%						
5U03	2422 549 44197	Bead 220Ω at 100MHz						
5U04	2422 549 44197	Bead 220Ω at 100MHz						
5U05	2422 536 00779	10μH 20%						
5U06	2422 536 00779	10μH 20%						
5Y00	2422 549 44197	Bead 220Ω at 100MHz						
5Y01	2422 549 44197	Bead 220Ω at 100MHz						
5Y02	2422 549 44197	Bead 220Ω at 100MHz						
5Y03	2422 549 44197	Bead 220Ω at 100MHz						
5Y06	2422 549 44197	Bead 220Ω at 100MHz						
5Y07	2422 549 44197	Bead 220Ω at 100MHz						
5Y09	4822 157 11716	Bead 30Ω at 100MHz						
5Y11	2422 549 44197	Bead 220Ω at 100MHz						
5Y12	2422 549 44197	Bead 220Ω at 100MHz						
5Y14	2422 549 44197	Bead 220Ω at 100MHz						
5Y15	2422 549 44197	Bead 220Ω at 100MHz						
5Y16	2422 549 44197	Bead 220Ω at 100MHz						
5Y17	2422 549 44197	Bead 220Ω at 100MHz						
5Y18	2422 549 44197	Bead 220Ω at 100MHz						
5Y20	2422 549 44197	Bead 220Ω at 100MHz						
5Y21	4822 117 10353	150Ω 1% 0.1W						
5Y22	4822 117 10353	150Ω 1% 0.1W						
5Y23	2422 549 44197	Bead 220Ω at 100MHz						
5Z01	2422 549 45325	Bead 67Ω at 100MHz						
5Z02	2422 549 45325	Bead 67Ω at 100MHz						

7A08	9340 425 20115	BC847BS
7A09	4822 130 60373	BC856B
7A11	9322 199 16668	M74HC590T
7A12	9322 199 16668	M74HC590T
7A13	3198 010 42310	BC847BW
7A14	9351 869 90118	74HCT573PW
7A15	9351 869 90118	74HCT573PW
7A16	9322 208 98668	M68AF031AM70N6
7A31	9340 425 20115	BC847BS
7E01	9322 142 88668	LF25CDT
7E02		For SW see item 0602
7E03	9352 687 21165	74LVC1G126GW
7E04	9352 687 20125	74LVC1G125GW
7E05	9322 170 14668	LF15ABDT
7E10	9352 759 98118	PCA9515ADP
7E12	9340 425 20115	BC847BS
7E23	9322 181 72671	AD9883AKST-110
7E24	9322 205 36668	AD9283BRSZ-50
7E25	3198 010 42320	BC857BW
7E26	3198 010 42320	BC857BW
7E27	3198 010 42320	BC857BW
7I01	9340 425 20115	BC847BS
7I02	9340 425 20115	BC847BS
7I03	9340 425 20115	BC847BS
7I04	3198 010 42310	BC847BW
7I05	9340 425 30115	BC847BPN
7I07	4822 130 60142	BC869
7I09	3198 010 42310	BC847BW
7I10	9352 759 98118	PCA9515ADP
7I12	9351 869 40118	74HC4053PW
7I18	9322 183 61682	SI907BCQ52
7I19		For SW see item 0603
7I20	9351 869 40118	74HC4053PW
7I21	9340 425 30115	BC847BPN
7I22	3198 010 42310	BC847BW
7I23	9340 425 20115	BC847BS
7I27	3198 010 42320	BC847BW
7I29	3198 010 42320	BC857BW
7I31	3198 010 42320	BC857BW
7I32	9351 869 40118	74HC4053PW
7I35	3198 010 42310	BC847BW
7I36	3198 010 42310	BC847BW
7I37	3198 010 42320	BC857BW
7I38	3198 010 42310	BC847BW
7I40	3198 010 42310	BC847BW
7I44	9340 425 20115	BC847BS
7I45	9322 192 16685	TS2431AI
7I46	3198 010 42310	BC847BW
7I49	9340 310 30215	PDTC144ET
7I50	9340 425 30115	BC847BPN
7I51	9340 560 35235	BSH112
7I52	9340 560 35235	BSH112
7I53	9340 425 30115	BC847BPN
7I55	4822 209 16095	BA7657F
7I56	3198 010 42310	BC847BW
7I57	3198 010 42310	BC847BW
7I58	3198 010 42310	BC847BW
7I62	3198 010 42310	BC847BW
7I65	4822 209 17398	LD1117DT33
7L01	9322 181 72671	AD9883AKST-110
7L02	4822 209 17398	LD1117DT33
7P56	4822 209 17345	M62320FP
7U01	4822 130 60373	BC856B
7U02	4822 130 60373	BC856B
7U03	9340 563 82518	SI4410DY
7U04	9340 563 82518	SI4410DY
7U05	3198 010 42320	BC857BW
7U06	9340 425 20115	BC847BS
7U07	9340 425 30115	BC847BPN
7U08	4822 130 42804	BC817-25
7U09	4822 130 42804	BC817-25
7U10	3198 010 42310	BC847BW
7U11	3198 010 42310	BC847BW
7U12	3198 010 42310	BC847BW
7U13	9340 425 30115	BC847BPN
7V01	9322 217 35671	EP1C12F256C8N
7V03	9322 206 19672	MSM56V16160F-7T3-FG
7V04	9340 425 20115	BC847BS
7Y01	9340 310 30215	PDTC144ET
7Y02	3198 010 42320	BC857BW
7Y03	9340 310 30215	PDTC144ET
7Y04	9340 310 30215	PDTC144ET

PDP Audio Panel [C]

Various

1735	4822 267 10918	Connector 3p
1736	2422 025 10768	Connector 3p m
1M02	4822 267 10618	Connector 7p
1M06	2422 025 11244	Connector 7p m
1M52	2422 025 10769	Connector 9p m

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2700	4822 126 14247	1.5nF 50V 0603
2701	4822 126 14249	560pF 10% 50V 0603
2703	2020 552 96683	220nF 10% 50V
2704	4822 124 11767	470μF 20% 25V
2705	4822 126 14249	560pF 10% 50V 0603
2706	5322 126 11579	3.3nF 10% 63V
2707	2222 580 15649	100nF 10% 50V 0805
2709	2020 552 96683	220nF 10% 50V
2710	2020 552 96683	220nF 10% 50V
2711	2022 552 05679	1μF 10% 16V 0805
2712	4822 126 14583	470nF 10% 16V 0805
2713	4822 126 13193	4.7nF 10% 63V
2715	4822 121 51252	470nF 5% 63V
2716	3198 017 31530	15nF 20% 50V 0603
2717	2022 552 05679	1μF 10% 16V 0805
2718	2222 580 15649	100nF 10% 50V 0805
2719	4822 126 14583	470nF 10% 16V 0805
2720	2020 021 91431	22μF 20% 100V
2721	2222 580 15649	100nF 10% 50V 0805
2722	4822 126 14583	470nF 10% 16V 0805
2723	2022 552 05679	1μF 10% 16V 0805
2726	4822 126 13193	4.7nF 10% 63V
2727	4822 126 14249	560pF 10% 50V 0603
2731	4822 126 14249	560pF 10% 50V 0603
2732	4822 126 14583	470nF 10% 16V 0805
2736	4822 121 51252	470nF 5% 63V
2737	3198 017 31530	15nF 20% 50V 0603
2739	2222 580 15649	100nF 10% 50V 0805
2741	4822 126 13883	220pF 5% 50V
2743	3198 016 31020	1nF 25V 0603
2744	2222 580 15649	100nF 10% 50V 0805
2745	2020 552 96683	220nF 10% 50V
2746	4822 124 11767	470μF 20% 25V
2747	2022 552 05679	1μF 10% 16V 0805
2748	4822 126 14247	1.5nF 50V 0603
2749	5322 126 11579	3.3nF 10% 63V
2751	4822 124 40433	47μF 20% 25V
2754	2020 021 91431	22μF 20% 100V
2770	3198 017 41050	1μF 10V 0603
2776	2020 021 91431	22μF 20% 100V
2780	4822 126 14583	470nF 10% 16V 0805
2789	4822 126 14583	470nF 10% 16V 0805
2790	2222 580 15649	100nF 10% 50V 0805
2791	4822 126 13879	220nF +80-20% 16V

—WW—

3700	4822 051 30561	560Ω 5% 0.062W
3701	4822 051 30479	47Ω 5% 0.062W
3702	3198 021 38220	8.2kΩ 5% 0.062W 0603
3703	3198 021 38220	8.2kΩ 5% 0.062W 0603
3704	4822 117 13632	100kΩ 1% 0603 0.62W
3705	4822 051 30222	2.2kΩ 5% 0.062W
3706	4822 051 30392	3.9Ω 5% 0.063W 0603
3707	4822 051 30393	39kΩ 5% 0.062W
3708	4822 051 30479	47Ω 5% 0.062W
3709	4822 051 30472	4.7Ω 5% 0.062W
3710	4822 051 30393	39kΩ 5% 0.062W
3711	2322 762 60568	5.6Ω 5% 5% 2512
3712	4822 051 30472	4.7Ω 5% 0.062W
3713	4822 051 30332	3.3Ω 5% 0.062W
3714	4822 051 30392	3.9Ω 5% 0.063W 0603
3715	2322 762 60568	5.6Ω 5% 5% 2512
3716	4822 117 13632	100kΩ 1% 0603 0.62W
3717	4822 051 30222	2.2kΩ 5% 0.062W
3718	4822 051 30561	560Ω 5% 0.062W
3719	4822 051 30124	120kΩ 5% 0.062W
3720	4822 051 30479	47Ω 5% 0.062W
3721	4822 051 30471	47Ω 5% 0.062W
3722	4822 051 30124	120kΩ 5% 0.062W
3723	4822 051 30471	47Ω 5% 0.062W
3724	4822 051 30102	1kΩ 5% 0.062W
3725	4822 117 12925	47kΩ 1% 0.063W 0603
3726	4822 051 30153	15kΩ 5% 0.062W
3727	4822 051 30103	10kΩ 5% 0.062W
3728	4822 051 30153	15kΩ 5% 0.062W
3729	4822 117 12925	47kΩ 1% 0.063W 0603
3730	4822 051 30223	22kΩ 5% 0.062W
3731	4822 051 30102	1kΩ 5% 0.062W
3732	4822 051 30223	22kΩ 5% 0.062W
3733	4822 051 30562	5.6kΩ 5% 0.063W 0603
3734	4822 051 30223	22kΩ 5% 0.062W
3735	4822 117 12889	270kΩ 1% 0.063W 0603
3736	4822 117 12925	47kΩ 1% 0.063W 0603
3737	4822 117 12925	47kΩ 1% 0.063W 0603
3738	4822 117 13632	100kΩ 1% 0603 0.62W
3740	4822 117 13632	100kΩ 1% 0603 0.62W
3742	4822 117 13632	100kΩ 1% 0603 0.62W
3746	4822 051 30222	2.2kΩ 5% 0.062W
3748	4822 117 13632	100kΩ 1% 0603 0.62W

3751	4822 051 30222	2.2kΩ 5% 0.062W
3752	4822 051 30103	10kΩ 5% 0.062W
3760	4822 051 30223	22kΩ 5% 0.062W
3764	4822 117 13632	100kΩ 1% 0603 0.62W
3765	4822 117 13632	100kΩ 1% 0603 0.62W
3777	4822 051 30102	1kΩ 5% 0.062W
3778	4822 051 30479	47Ω 5% 0.062W
3999	4822 051 30102	1kΩ 5% 0.062W
9710	4822 051 20008	Jumper 0805
9711	4822 051 20008	Jumper 0805
9712	4822 051 20008	Jumper 0805
9713	4822 051 20008	Jumper 0805
9748	4822 051 20008	Jumper 0805
9757	4822 051 20008	Jumper 0805
9758	4822 051 20008	Jumper 0805
9759	4822 051 20008	Jumper 0805
9760	4822 051 20008	Jumper 0805
9761	4822 051 20008	Jumper 0805
9762	4822 051 20008	Jumper 0805
9763	4822 051 20008	Jumper 0805
9764	4822 051 20008	Jumper 0805
9765	4822 051 20008	Jumper 0805
9766	4822 051 20008	Jumper 0805
9768	4822 051 20008	Jumper 0805
9770	4822 051 20008	Jumper 0805
9790	4822 051 20008	Jumper 0805
9795	4822 051 20008	Jumper 0805
9796	4822 051 20008	Jumper 0805
9806	4822 051 20008	Jumper 0805
9807	4822 051 20008	Jumper 0805
9808	4822 051 20008	Jumper 0805

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5700	2422 536 00942	33μH 20%
5701	4822 157 11716	Bead 30Ω at 100MHz
5702	2422 536 00942	33μH 20%
5705	4822 157 11411	Bead 80Ω at 100MHz
5708	4822 157 11411	Bead 80Ω at 100MHz

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6700	4822 130 11522	UDZ15B
6702	9322 150 18685	BZ2384-C47
6703	4822 130 10838	UDZ3.3B
6704	4822 130 11551	UDZS10B
6705	4822 130 11551	UDZS10B



7700	9322 202 89668	LM393P
7701	9352 729 65112	TDA8925ST/N1
7702	3198 010 42310	BC847BW
7705	3198 010 42310	BC847BW
7706	3198 010 42310	BC847BW
7707	3198 010 42310	BC847BW
7708	3198 010 42320	BC857BW
7709	3198 010 42310	BC847BW
7710	3198 010 42310	BC847BW
7711	3198 010 42320	BC857BW
7712	3198 010 42310	BC847BW
7713	3198 010 42310	BC847BW
7715	3198 010 42310	BC847BW
7716	3198 010 42310	BC847BW
7717	3198 010 42310	BC847BW
7720	3198 010 42310	BC847BW

Side I/O Panel [D]

Various

0206	3104 308 12561	Side I/O bracket
1001	2422 026 05133	Connector SVHS 4p f
1002	4822 267 10975	Connector 3p
1010	4822 267 31014	Socket head phone
1016	3104 328 28881	Side I/O assy
1M36	2422 025 17179	Connector 11p m

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2003	2022 552 05679	1μF 10% 16V 0805
2004	3198 016 36810	680pF 25V 0603
2005	2020 552 94427	100pF 5% 50V
2006	3198 016 36810	680pF 25V 0603
2007	2020 552 94427	100pF 5% 50V
2008	2238 916 15641	22nF 10% 25V 0603
2009	5322 126 11583	10nF 10% 50V 0603
2010	2238 916 15641	22nF 10% 25V 0603
2011	5322 126 11583	10nF 10% 50V 0603

—WW—		
3000	4822 051 30759	75Ω 5% 0.062W
3004	4822 051 30759	75Ω 5% 0.062W
3008	4822 051 30222	2.2kΩ 5% 0.062W
3009	4822 051 30102	1kΩ 5% 0.062W
3010	4822 051 30333	33kΩ 5% 0.062W
3011	4822 051 30392	3.9kΩ 5% 0.063W 0603
3012	4822 051 30102	1kΩ 5% 0.062W
3013	4822 051 30333	33kΩ 5% 0.062W
3016	4822 051 30103	10kΩ 5% 0.062W
3020	4822 051 30103	10kΩ 5% 0.062W
9004	4822 051 30008	Jumper 0603
9005	4822 051 30008	Jumper 0603
9006	4822 051 30008	Jumper 0603
9007	4822 051 30008	Jumper 0603
9008	4822 051 30008	Jumper 0603
9009	4822 051 30008	Jumper 0603
9010	4822 051 30008	Jumper 0603
9011	4822 051 30008	Jumper 0603

—H—		
6000	4822 130 11416	PDZ6.8B
6001	4822 130 11416	PDZ6.8B
6002	4822 130 11416	PDZ6.8B
6003	4822 130 11416	PDZ6.8B
6004	4822 130 11416	PDZ6.8B
6005	4822 130 11416	PDZ6.8B
6006	4822 130 11416	PDZ6.8B
6007	4822 130 11416	PDZ6.8B
6008	4822 130 11416	PDZ6.8B
6009	4822 130 11416	PDZ6.8B
6010	4822 130 11416	PDZ6.8B
6011	4822 130 11416	PDZ6.8B

Top Control Assy [E]

Various

0049	3104 308 11601	Mains knob
0054	3104 308 11591	Mains knob frame
0345	2422 025 16544	Connector 6p m
1701	4822 276 13775	Switch
1702	4822 276 13775	Switch
1703	4822 276 13775	Switch
1704	4822 276 13775	Switch
1705	4822 276 13775	Switch
1710	4822 276 14007	Switch 2P 0.1A 12V
8345	3104 311 06941	Cable 6P/680/6P

—WW—		
3008	4822 117 10845	620Ω 1% 0.1W
3010	4822 117 11534	1.1kΩ 1% 0.1W
3011	4822 117 11951	2kΩ 1% 0.1W
3013	4822 117 13528	200Ω 1% 0.125W 0805
3014	3198 031 03910	390Ω 1% 0.0402
3017	4822 051 30339	33Ω 5% 0.062W
3018	4822 051 30339	33Ω 5% 0.062W
3019	4822 051 30339	33Ω 5% 0.062W
3020	4822 051 30339	33Ω 5% 0.062W
3021	4822 051 30339	33Ω 5% 0.062W
3022	4822 051 30339	33Ω 5% 0.062W
3023	4822 051 30339	33Ω 5% 0.062W
3024	4822 051 30339	33Ω 5% 0.062W
3025	4822 051 30339	33Ω 5% 0.062W
3026	4822 051 30339	33Ω 5% 0.062W
3027	4822 051 30339	33Ω 5% 0.062W
3028	4822 051 30339	33Ω 5% 0.062W
3999	4822 117 13602	2.2kΩ 5% 0.01W 0402
9000	4822 117 13605	Jumper 0402

—H—		
6001	9322 198 19685	SML512BC2T
6002	9322 198 19685	SML512BC2T
6003	9322 198 19685	SML512BC2T
6004	9322 198 19685	SML512BC2T
6005	9322 198 19685	SML512BC2T
6006	9322 198 19685	SML512BC2T
6007	9322 198 19685	SML512BC2T
6008	9322 198 19685	SML512BC2T
6009	9322 198 19685	SML512BC2T
6010	9322 198 19685	SML512BC2T
6011	9322 198 19685	SML512BC2T
6012	9322 198 19685	SML512BC2T

SCART 3 [H]

Various

1003	2422 025 14911	Socket Euro 21p f
1M07	4822 267 10637	Connector 5p
—H—		
2500	2022 552 05679	1μF 10% 16V 0805
2501	2020 552 94427	100pF 5% 50V
2502	2022 552 05679	1μF 10% 16V 0805
2503	2020 552 94427	100pF 5% 50V
2504	2022 552 05679	1μF 10% 16V 0805
2505	2022 552 05679	1μF 10% 16V 0805
2506	2238 586 59812	100nF 20% 50V 0603
2507	5322 126 11578	1nF 10% 50V 0603
2508	2022 552 05679	1μF 10% 16V 0805
2509	2238 586 59812	100nF 20% 50V 0603
2510	4822 126 14241	330pF 0603 50V
2511	2238 586 59812	100nF 20% 50V 0603
2512	2238 586 59812	100nF 20% 50V 0603
2513	2238 586 59812	100nF 20% 50V 0603
2515	2022 552 05679	1μF 10% 16V 0805
2516	2022 552 05679	1μF 10% 16V 0805
2517	2022 552 05679	1μF 10% 16V 0805

—WW—		
3500	4822 051 30101	100Ω 5% 0.062W
3501	4822 051 30101	100Ω 5% 0.062W
3502	4822 051 30223	22kΩ 5% 0.062W
3503	4822 051 30101	100Ω 5% 0.062W
3504	4822 051 30101	100Ω 5% 0.062W
3505	4822 051 30223	22kΩ 5% 0.062W
3506	4822 051 30759	75Ω 5% 0.062W
3507	4822 051 30759	75Ω 5% 0.062W
3508	4822 051 30759	75Ω 5% 0.062W
3509	4822 051 30101	100Ω 5% 0.062W
3510	4822 051 30759	75Ω 5% 0.062W
3511	4822 051 30479	47Ω 5% 0.062W
3512	4822 051 30479	47Ω 5% 0.062W
3513	4822 051 30479	47Ω 5% 0.062W
3514	4822 051 30479	47Ω 5% 0.062W
3515	4822 051 30479	47Ω 5% 0.062W
3516	4822 051 30479	47Ω 5% 0.062W
3517	4822 117 12925	47kΩ 1% 0.063W 0603
3522	4822 051 30272	2.7kΩ 5% 0.062W
3523	4822 051 30223	22kΩ 5% 0.062W
3524	4822 051 30479	47Ω 5% 0.062W
3525	4822 051 30102	1kΩ 5% 0.062W
3526	5322 117 13056	8.2kΩ 1% 0.063W 0603
3527	4822 051 30683	68kΩ 5% 0.062W
3528	4822 051 30223	22kΩ 5% 0.062W
3529	4822 051 30102	1kΩ 5% 0.062W
3535	4822 051 30479	47Ω 5% 0.062W
3536	4822 051 30103	10kΩ 5% 0.062W
3543	4822 051 30759	75Ω 5% 0.062W
3599	4822 051 30102	1kΩ 5% 0.062W
3999	4822 051 30102	1kΩ 5% 0.062W
9502	4822 051 30008	Jumper 0603
9508	4822 051 30008	Jumper 0603
9509	3198 036 90010	Wire 0.58mm
9510	3198 036 90010	Wire 0.58mm
9511	3198 036 90010	Wire 0.58mm
9512	3198 036 90010	Wire 0.58mm
9513	3198 036 90010	Wire 0.58mm
9514	3198 036 90010	Wire 0.58mm
9515	3198 036 90010	Wire 0.58mm
9521	4822 051 30008	Jumper 0603
9523	3198 036 90010	Wire 0.58mm
9524	4822 051 30008	Jumper 0603
9525	3198 036 90010	Wire 0.58mm
9526	3198 036 90010	Wire 0.58mm

—H—		
6500	4822 130 11416	PDZ6.8B
6501	4822 130 11416	PDZ6.8B
6502	4822 130 11416	PDZ6.8B
6503	4822 130 11416	PDZ6.8B
6504	4822 130 11397	BAS316
6505	4822 130 11416	PDZ6.8B
6506	4822 130 11416	PDZ6.8B
6507	9340 548 61115	PDZ12B
6508	4822 130 11551	UDZS10B



7501	3198 010 42310	BC847BW
7502	3198 010 42310	BC847BW
7515	9351 869 40118	74HC4053PW
7516	9351 869 40118	74HC4053PW

LED Panel [J]

Various

0163	3122 124 36081	Day light filter
0345	2422 025 16961	Connector 6p m SMD
0345	2422 025 18741	Connector 6p m
1040	9322 206 81667	TSOP34836YA1
1M01	2422 025 17103	Connector 3p m SMD
1M01	2422 025 18738	Connector 3p m
1M20	2422 025 17441	Connector 12p m
1M20	2422 025 18736	Connector 12p m

—H—		
2030	4822 124 23002	10μF 16V
2040	4822 124 12095	100μF 20% 16V
2060	5322 124 41945	22μF 20% 35V
2070	4822 126 14583	470nF 10% 16V 0805
2071	4822 124 23002	10μF 16V

—WW—		
3011	4822 117 13545	100Ω 1% 0.0402
3020	4822 117 13606	10kΩ 5% 0.01W 0402
3030	3198 031 04720	4.7kΩ 5% 0.0402
3031	4822 117 11297	100kΩ 5% 0.1W
3031	4822 117 12889	270kΩ 1% 0.063W 0603
3031	4822 117 13632	100kΩ 1% 0.0603 0.62W
3032	2322 705 70184	180Ω 5% 0.0402
3033	4822 051 30102	1kΩ 5% 0.062W
3033	4822 117 13548	1kΩ 5% 0.0402
3034	4822 117 13548	1kΩ 5% 0.0402
3035	3198 031 04720	4.7kΩ 5% 0.0402
3036	3198 031 02280	2.2Ω 5% 0.1W 0402
3037	3198 031 02280	2.2Ω 5% 0.1W 0402
3040	4822 117 13597	330Ω 5% 0.0402 0.01W
3041	4822 117 13606	10kΩ 5% 0.01W 0402
3042	3198 031 06820	6.8kΩ 5% 0.01W 0402
3051	4822 117 13597	330Ω 5% 0.0402 0.01W
3060	4822 117 13606	10kΩ 5% 0.01W 0402
3061	4822 051 30331	330Ω 5% 0.062W
3062	4822 117 11373	100Ω 1% 0.0805
3063	4822 117 13606	10kΩ 5% 0.01W 0402
3064	4822 117 11373	100Ω 1% 0.0805
3070	2322 705 70475	4.7MΩ 5% 0.0402
3071	2322 705 70475	4.7MΩ 5% 0.0402
3072	4822 117 13548	1kΩ 5% 0.0402
3073	3198 031 03320	3.3kΩ 5% 0.0402
3074	4822 117 13606	10kΩ 5% 0.01W 0402
3075	3198 031 04720	4.7kΩ 5% 0.0402
3076	3198 031 03320	3.3kΩ 5% 0.0402
3077	3198 031 03320	3.3kΩ 5% 0.0402
3078	3198 031 03320	3.3kΩ 5% 0.0402
3079	3198 031 03320	3.3kΩ 5% 0.0402
3091	4822 117 13606	10kΩ 5% 0.01W 0402
3093	4822 117 13606	10kΩ 5% 0.01W 0402
3096	4822 117 13606	10kΩ 5% 0.01W 0402
3999	3198 031 04720	4.7kΩ 5% 0.0402
9010	4822 117 13605	Jumper 0402
9012	4822 117 13605	Jumper 0402
9013	4822 117 13605	Jumper 0402
9014	4822 117 13605	Jumper 0402
9015	4822 117 13605	Jumper 0402
9016	4822 117 13605	Jumper 0402
9017	4822 117 13605	Jumper 0402
9019	4822 117 13605	Jumper 0402
9022	4822 051 30008	Jumper 0603
9024	4822 051 30008	Jumper 0603
9026	4822 117 13605	Jumper 0402
9027	4822 117 13605	Jumper 0402
9040	4822 117 13605	Jumper 0402
9041	4822 117 13605	Jumper 0402
9042	4822 117 13605	Jumper 0402
9043	4822 117 13605	Jumper 0402
9044	4822 117 13605	Jumper 0402
9050	4822 117 13605	Jumper 0402
9060	4822 117 13605	Jumper 0402
9081	4822 117 13605	Jumper 0402
9082	4822 117 13605	Jumper 0402



6030	4822 130 11397	BAS316
6031	4822 130 11397	BAS316
6051	4822 130 11395	TLMH3100
6051	4822 130 83915	TLMV3100
6060	9322 208 45685	SML512BC4TL
6061	4822 130 11397	BAS316
6070	9322 140 63685	TEMD5000



7030	3198 010 42320	BC857BW
7031	5322 130 62804	BCP53
7032	3198 010 42310	BC847BW
7060	3198 010 42310	BC847BW
7061	3198 010 42310	BC847BW
7070	9322 192 63668	LM358P

11. Revision List

- Manual xxxx xxx xxxx.0
- First release.